The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No 381.—Vol. XII.] LONDON: SATURDAY, DECEMBER 31, 1842. [Price 6d.

MAESTEG IRON-WORKS AND MARGAM TIN PLATE WORKS, Glamorganshire.—These two important works, now in actual operation, will be OFFERED FOR SALE, BY AUCTION (unless in the mean time disposed of by private contract), in the month of February next. The Maesteg Works consist of TWO BLAST FURNACES, with STEAM ENGINE, of 45-Horse power, have an ample supply of IRON ORE and COAL, extending under 5000 acres of land.—The Margam Tin Plate Works are adapted to the make of one BOXED TIN PLATES per week; the water-power is considerable; the whole of the machinery in good working order. The present machinery is applicable also to the ROLLING of METALS of every description.

Full particulars, and due notice, will be given of the time and place of sale; meantime the works may be viewed, and any information respecting them obtained, on application to Mr. David Rowland, solicitor, White Lion-court, Cornhill, London; and Mr. William Llewellyn, solicitor, Neath. 1

VALUABLE FREEHOLD ESTATE AND MINING PROPERTY, situate in the immediate vicinity of the Hon. Edward Mostyn Lloyd Mostyn's highly productive lead mines, in Flintshire.—TO BE SOLD, BY AUCTION, at the Dolphin Arms Hotel, in the town of Mold, in the county of Flint, on the 18th day of January, 1843, between the hours of Two and Four o'clock in the afternoon, subject to the conditions which will be then and there produced, unless previously disposed of by private contract, of which due notice will be given, all that MESSUAGE, TENEMENT, FARM, and LANDS, with the appurtenances, called COEDMAWR, otherwise PANTY MWYN, in the parish of Mold, in the county of Flint, now in the holding of Thomas Roberts, containing, by admeasurement, 27 acres 2 roods and 34 perches (be the same more or less). This valuable and productive estate joins the far-famed mining districts on the Hon. Edward Mostyn Lloyd Mostyn's property; the highly lucrative nature of which is too well known and approbated to need any lengthened comment. The farm is replete with all the requisite conveniences to ensure every necessary comfort, and the capabilities and richness of the soil tend to render the property one of the most eligible and secure spots for the investment of capital in the county.

The tenant will show the premises, and for further particulars apply to Messrs. Rumsey Williams, solicitor, Carnarvon. 2

FOR SALE, BY PRIVATE CONTRACT, on the Rosewall-hill Mine, one and a half mile from St. Ives, in Cornwall, THREE STEAM-ENGINES, all now only three years ago; No. 1, a 36-inch cylinder PUMPING-ENGINE, 9-feet stroke in the cylinder and 7-feet in the pump, with all wood work complete, including doors and windows and first plow of connection-rod; No. 2, a STAMPING-ENGINE, on Sims's combined cylinder principle—4-horse power. The consumption of coals with this engine never exceeded 7½ lbs. per horse power per hour; No. 3, a WINDING-ENGINE, 20 inch, double power, Boulton and Watt engine—6-feet stroke, with winding apparatus (iron) complete. The whole of these engines are on the most modern construction, made of the best material and workmanship; are only one and a half mile from a good shipping port, and may be had very cheap.—Application to be made to Mr. Nicholas Tredinick, of Camborne, to Mr. James Sims, engineer, at Redruth; or to Mr. English, 76, Fleet-street, London. Redruth, Dec. 5. 3

COLLIERY, IRONSTONE, IRON-WORK, and FOUNDRY, in Clackmannanshire.—TO BE LET, with entry at the term of Whitsunday next, the VALUABLE COAL-FIELD of NORTH SAUCHIE, near Alloa, at present in the possession of the Devon Iron Company. This coal has been wrought for the last forty years, in connection with the iron-works at Devon, and is particularly well adapted for the manufacture of iron. The present workings are confined to two seams—the upper five-feet and nine-feet; but there is an extensive field of the lower five-feet seam to work, and the splint coal in the property is unwrought, both of which could be obtained by sinking down the existing pits at an inconsiderable expense. Besides these there are other workable seams in the coal-field still unwrought. The machinery, utensils, and workmen's houses will be delivered over to the tenant. If required, by the tenant offering for the North Sauchie Colliery, arrangements could be made with the Devon Iron Company for obtaining possession at the term of Whitsunday of the Ironstone, and of the Iron-Work and Foundry, at present occupied by them. In this case, either a lease or a permanent feu-right will be given to the ground on which the Iron-Work are situated, and the lease of the Coal and Ironstone will be granted for such a number of years as may be agreed on. The ironstone supplies a considerable quantity of the materials used by the present company; and the works being well situated for the making of iron as well as for foundry purposes, could be considerably extended.

For full particulars apply to Robert Jameson, Esq., of Alloa; or to James I. Mitchell, W.S., 9, Randolph Cliff—the latter of whom will show the working plans of the coal and iron-lease.—Edinburgh, Dec. 8. 4

COAL AND LAND TO BE LET, with immediate possession.—All the VEINS, or SEAMS, of COAL under Worgfaur and Cwmdu Farms, and fields at Waunwen, near Swansea. The coal is bituminous and of excellent quality, and the surface of the land under which it lies comprises about 170 acres. A lease will be granted for a long term of years, at a fixed rent, and a royalty to be agreed upon.—Also a FARM or TENEMENT of LAND, called PENLANFACH, situate in the parish of Llangyfelach, and distant about two miles from Swansea; it consists of about eighteen acres of pasture land. The whole or any part of it may be had for building on lease for a long term of years.—Also TWO FIELDS of excellent MEADOW LAND, situate under Hendrefoleu, and within the precincts of the town of Swansea. The larger field contains about five acres and the smaller about four acres; and they may be had either together or separately. There is a quantity of good manure stored in one of the fields, which the Lessee or tenant will be expected to take and pay for at a valuation.—Also SEVERAL FIELDS or PIECES of MEADOW LAND, situate near Penlyrlerain, in the parish of Swansea, and containing about thirty acres. Building leases will be granted of the whole or any portion of these fields.

For further particulars, and to treat, apply to Mr. J. G. Jeffreys, solicitor, Swansea. 5

STEEL WORKS AND MINE.—TO BE LET, for such term as may be agreed upon, together or separate, the LOTHEBOKE MINE and a WATER-POWER ENGINE (blast), with hammer, wheel, and furnace, wave houses, and sheds, with dwelling-house for workmen. The mine has been discovered within two or three years, and is now proved to contain the richest ores, as well as inferior ones, out of which "blooms" have been, and are now, making equal to Swedish or Russian. The ores are in the greatest abundance, and are to be had, with fuel, at a moderate charge.

Further particulars to be known by letters, addressed to Mr. John Easton, land surveyor, Bradner, near Taunton, Somersetshire. 6

SOHO STEEL-WORKS.—TO BE LET, with immediate possession, either for a term of years or from year to year, the ACCOUNTING HOUSE, WAREHOUSES, and SHOPS, at SOHO, in the county of Stafford, in which the Sole Steel Trade has been carried on for upwards of eighty years, with the use of Engine Power for the purposes of the manufactory. These premises are situated about two miles from the centre of Birmingham, and being out of the parish, the poor rates are low.—For rent and other particulars, apply to Mr. Joseph Westley, of Soho; or to Messrs. Ingleby, Wragge, and Cope, solicitors, Bennett's Hill, Birmingham. 7

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the safest, cheapest, and most expeditious mode of effecting this very hazardous operation. From many testimonies to its usefulness with which the Manufacturers have been furnished from every part of the kingdom, they submit the following letter, recently received from John Taylor, Esq., F.R.S., &c., &c.—

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall. 8

THE "HINDOSTAN" STEAM-SHIP AND H.M. FRIGATE "PENELOPE."—The two above named steam-ships are entirely fitted with ANDREW SMITH'S PATENT WIRE ROPE for their Standing Rigging; they have now running that practical experience is daily and progressively establishing its superiority over all other Standing Rigging. For all running and other purposes it is already proved to be the best and most serviceable description of rope, equalling hemp and chain.—For further particulars, address Mr. Andrew Smith, White Lion-court, Cornhill, London. 9

SEYSSEL ASPHALTE—CLARIDGE'S PATENT.—Patronised by all the principal Architects and Builders in this country and abroad.—This ASPHALTE is a bituminous limestone, obtained from an inexhaustible mine at Pyrimont, in the Jura Mountains. In consequence of the daily attempts made to imitate this invaluable mineral production, by the mixture of pay and other tars, chalk and sand (to which compositions the name of "Asphalte" is given), ARCHITECTS, BUILDERS, and others, for the purpose of ensuring the use of the genuine article, are particularly REQUESTED to INSERT in their SPECIFICATIONS, "The Seyssel Asphalte—Claridge's Patent," and not merely "Asphalte," or "Bitumen." As a proof of the great durability of the GENUINE ASPHALTE, it need only be mentioned, that the first work executed in this country with this material (according to Pliny), was at Whitehall, opposite the Horse Guards, in the month of April, 1830, and which, although only half an inch in thickness, has remained, up to this time (a period of four years and eight months), in the most perfect condition.—Books of testimonials, with scale of prices, may be obtained on application to J. TARBELL, Secretary.

Seyssel Asphalte Company's Depôt, Penzance, London.

Note.—Neither the pavement in Parliament-street, London, nor the works at the Model Prisons, at the Abbey-park Cemetery (which, from its failure, has since been removed), or at the Hotel, at the Slough Station of the Great Western Railway, were executed by this company. 10

A PRACTICAL MAN, of business-habits and strict integrity, OFFERS to CONDUCT HIMSELF with any COLLIERY as a PARTNER, or otherwise; he will undertake to conduct the working and sale of the coal, without other remuneration than a moiety of the profits accruing, or such remunerative proportion thereof as may be considered due to his skill and attention.

Apply by letter (post paid) to "A. Y." care of the Editor of the *Mining Journal*, 26, Fleet-street, London. 11

A CIVIL ENGINEER, of much experience, not being at present fully occupied, OFFERS his PROFESSIONAL SERVICES on MODERATE and CONFIDENTIAL TERMS. He will be happy to give his advice on Improvements in Harbours, Docks, Rivers, Embankments, Roads, and Bridges; as also Railways, and the arrangement of New Machinery and Manufactories. Address "C. E." 12, Gough-square, Fleet-street, London. 12

FOR SALE, SIX LOCOMOTIVE ENGINES, well worthy the attention of Railway Companies, Contractors for Earth Cutting, or Coal Owners.—For particulars apply to Timothy Hackworth, Soho Engine-Works, Shildon, Durham.—Dec. 26. 13

CHEAP STEAM-ENGINES.—HIGH-PRESSURE STEAM ENGINES, on an improved and simple principle, may be obtained at BURTON UPON-TRENT IRON WORKS, at the following prices:—

Five horse power, for a fixture, boiler included	£ 75
Five-horse power, for travelling, ditto	100
Ten-horse power, for a fixture, ditto	140
Ten-horse power, for travelling, ditto	180

Any further particulars may be obtained, by letter, addressed to Mr. Thorneycroft, Burton-upon-Trent. 14

TO BE SOLD, CHEAP, TWO very COMPLETE SETS of HOT-BLAST PIPES.—Apply to the Ystalyfera Iron Company. 15

FOR SALE, TWO ONE-HUNDREDTH SHARES in the Gogerddan Mines, comprising the Bog Mine, Darren, and Cwmsymlog, the celebrated mine from which Sir Hugh Middleton made immense profits. The present workings have just reached about two fathoms under the old mine, which is very extensive, and promises to hold out of immediate profits.—Application to be made to English, 76, Fleet-street, London. 16

SHARES IN CORNISH AND OTHER MINES BOUGHT, SOLD, or EXCHANGED, on COMMISSION; Mines inspected by first-rate practical miners; specimens of the ores of the various mines to be seen, and every information given, on application to William Tregoning, jun. (from Redruth, Cornwall), at his office, 30, Threadneedle-street, London.

N.B.—A quantity of Black Jack for Sale. 17

ANGLO-MEXICAN MINT.—Notice is hereby given, that a SPECIAL GENERAL MEETING of shareholders of the Anglo-Mexican Mint Company will be held at the office on Wednesday, the 4th of January next, to take into consideration the expediency of raising additional capital for the purposes of the company.—The chair will be taken at Two o'clock precisely.

Anglo Mexican Mint Office, G. B. LONSDALE, Secretary.
9, New Broad-street, London, Dec. 17. 18

COMBMARTIN AND NORTH DEVON LEAD & SILVER MINING COMPANY.—The directors have the pleasure to inform the shareholders that they have declared a DIVIDEND of ONE POUND per share, to be paid at the counting-house, on the mine, on the 1st day of February next, and following days. Persons attending either for themselves or friends will be kind enough to be prepared with the Numbers on the strip they apply for.

Combmartin, Dec. 27. WILLIAM NEWTON, Secretary. 19

ROYAL SANTIAGO MINING COMPANY.—Notice is hereby given, that the GENERAL MEETING of the shareholders will be held at the office of the company, on Wednesday, the 4th of January next, at One o'clock precisely, when the directors will make their report and declare a dividend.

16, Broad-street-buildings, Dec. 14. 20

WICKLOW COPPER MINING COMPANY.—The stated HALF YEARLY MEETING of the Wicklow Copper Mining Company will be held at 11, Lower Ormond-quay, on Thursday, the 12th of January next, at the hour of Two o'clock.—Dublin, Dec. 23. 21

PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY, Incorporated by Royal Charter.—Notice is hereby given, that the FOURTH HALF-YEAR'S DIVIDEND of THREE AND A HALF PER CENT., declared at the Annual General Meeting of the proprietors on the 30th November last, for the six months ending 30th of September, will be PAID at the offices of the company, No. 31, St. Mary Axe, to Irish subscribers, at the offices of Messrs. Richard Williams and Son, 20, Dame-street, Dublin, on and after Friday, the 16th December, between the hours of Eleven and Three each day. By order,

London, Dec. 6. JAMES ALLAN, Secretary. 22

BANKS'S PATENT.—TO RAILWAY DIRECTORS AND ENGINEERS.—T. BANKS has great pleasure in announcing that, by the APPLICATION of his PATENT IMPROVEMENT to the REPAIRS of TIRES of CARRIAGE and ENGINE WHEELS, a WORKING SURFACE is restored, of several times greater durability than any before used.—The testimonials already received of the efficiency and economy of this plan are too numerous to be placed in an advertisement.

LICENCES will be granted to Railway Companies, or other suitable persons.

For further particulars, address T. Banks, engineer, Bengal-street, Manchester.

N.B.—Patents are obtained for foreign countries, as well as for Great Britain and Ireland. 23

ELKINGTON & Co., Patentees of the ELECTRO-PROCESSES for PLATING and GILDING METALS, beg to announce that the following are their arrangements for meeting the increasing demand for their manufactures.

At No. 45, MOORGATE-STREET,

They have OPENED a RETAIL ESTABLISHMENT for the SALE of ELECTRO PLATED and GILT ARTICLES of every description.

At No. 22, REGENT-STREET (corner of Jermyn-street),

A SIMILAR ESTABLISHMENT will shortly be opened by them, with SHOW ROOMS, exhibiting every VARIETY of their ELECTRO MANUFACTURE in DINNER, DESSERT, BREAKFAST SERVICES, AND SIDEBOARD PLATE.

ELKINGTON & Co. have also established, in connexion with their premises, No. 45, Moorgate-street, a MANUFACTORY for their ELECTRO GILDING and PLATING PROCESSES, where articles of every description, and in ALL KINDS OF METALS, may be GILT and PLATED.

OLD SHEFFIELD PLATED ARTICLES are, by E. and Co.'s process, restored equal to NEW, at about one-third of their original cost.

Estimates and drawings forwarded to any part of the country.

N.B.—The usual Allowance to the Trade. 24

KING'S COLLEGE, LONDON.—DEPARTMENT OF ENGINEERING, ARTS, MANUFACTURES, and ARCHITECTURE.—This department, under the superintendence of Professor Hall, Moseley, Bidder, Wheatstone, Hosking, Dyce, and Amiel, and Mr. Bradley, Mr. Cooper, Mr. Tennant, Mr. A. Mosely, and Mr. Castle, will be REOPENED on TUESDAY, the 17th January at 10 o'clock.—Rooms are provided in the College for a limited number of students, and those of the Professors and Gentlemen connected with the College receive students into their houses.—Further information may be obtained at the Secretary's office in the College.

Somerset-house, 1842. J. LONSDALE, Professor. 25

RAILWAY IMPROVEMENT.

On Tuesday next will be published, in one vol. 8vo., with 18 plates, price 16s. 6d., in cloth boards, A NEW AND IMPROVED

EXAMPLES OF RAILWAY MAKING; which, although not of English practice, are considered, with PRACTICAL ILLUSTRATIONS, to the CIVIL ENGINEER and to the BRITISH and IRISH PUBLIC.

By JOHN WEALE, 59, High Holborn. 26

THE ARCHITECT, ENGINEER, AND SURVEYOR, or London Monthly Journal of the Engineering and Practical Sciences, and of Architecture and the Fine Arts.—The first Number of the New Series is just published, containing many valuable papers, by able practical men, on various subjects connected with the profession.

N.B.—The Third Volume for 1842 of the above work is just published, price 12s. cloth, with Titles, &c., and 37 engravings on wood and steel illustrations.

London: Bernard Wood, 160, Fleet-street. 27

THE THAMES TUNNEL IS OPEN TO VISITORS DAILY, Sunday excepted, from Nine in the morning until Five in the evening, and is constantly lighted with gas. The entrance, for a short time longer, is only on the Rotherhithe side of the Tunnel, and near the Tunnel Pier, at Wapping.—The Rotherhithe entrance being closed, is ordered to finish the new staircase.—Admission, 1s. each.

By order of the Board of Directors,

J. CHARLTON, Clerk of the Company.

Company's Office, 9, Wellington-buildings, City, December, 1842. 28

N.B. Steam-boats to the Tunnel Pier at Wapping, from Hungerford, Strand, Temple Bar, Blackfriars Bridge, Old Swan, Old Swan, and Adelaide Place, London Bridge, at every hour.

ANTHRACITE IRON.—CRANE'S PATENT—TERMS FOR LICENCES FOR SMELTING IRON, BY THE COMBINATION OF ANTHRACITE AND HEATED AIR, MAY BE HAD BY APPLICATION TO THE SOLICITORS OF THE PATENTEE, MESSRS. WATKINS AND HOOPER, 11, SACKVILLE-STREET, LONDON.

By the use of this process, it is believed that the whole of the veins of anthracite in the South Welsh Basin, amounting in the aggregate to 344 feet in thickness, are applicable to the purpose; all those above, and including the brass vein (being nearly 40 feet of the whole), have been successfully used by the patentee, at the Ynisedwyn Iron Works, near Swansea.

The consumption of anthracite in the smelting process, has varied from 27 to 34 cwt. per ton of iron, cost ruling to the vein in use.

To heat the blast, the average consumption has been from 7 to 9 cwt of inferior coal and coke.

With respect to the strength of HOT-BLAST Anthracite Iron, the public are referred to the short-hand writer's report of the evidence given on the trial in the Common Pleas, Feb. 11, 1842, in the cause, "Crane v. Price."

Folio 55.—Mr. David Mushet deposed, that he had taken a similar series of bars to those described and made one of by Mr. Treagold, for which see his work upon the subject; the same sized bars of remelted COLD-BLAST CAST-IRON, which would only support 172 lbs., required 2,204 lbs. to break them, when shot with remelted HOT-BLAST ANTHRACITE IRON.

Folios 77 and 78.—Mr. George Cottam stated in his evidence, that, with bars four feet between the supports, and one inch square, the following had been the result of his experiments:—

Remelted COLD-BLAST IRON broke at 440 lbs. to 445 lbs.
Remelted HOT-BLAST ANTHRACITE IRON broke at 520 lbs.

Vide Mr. G. Cottam's evidence likewise with respect to the extraordinary tenacility of hot-blast anthracite iron, in the same document.

The last experiment tried at the Ynisedwyn Iron-Works, which was in October of the present year, with 1-inch bars, 4ft. 6in. between the supports, and directly from the hot-blast anthracite furnace No. 1, gave the following breaking weights—Lbs. 660, 710, 654, 697, 630, 737, 600, 600—mean, 674 lbs.

Ynisedwyn Iron-Works,
Swansea Valley, November 24, 1842. 29

PATENT ELASTIC STEEL IRON, MADE (EXCLUSIVELY) by the YSTALYFERA IRON COMPANY, by the USE OF ANTHRACITE COAL WITH COLD-BLAST.—Mr. Mushet, the author of the celebrated Treatise on *the Manufacture of Iron and Steel*, who has made a series of most elaborate experiments on this extraordinary iron, in concluding, remarks:—"From these and the former comparative experiments, it is abundantly evident, that the pig-iron now making with cold blast and anthracite, at the Ystalyfera Iron Works, greatly exceeds in strength, in defective powers, and capacity to resist impact, any iron at this time manufactured in the United Kingdom. It now remains for me to mention a property peculiar to this iron. The property referred to, is one of great extraneousness, or elasticity, which communicates a tendency to the bar in deflection and breaking, to resume its rectilinear form. Bars that had obtained a permanent set of 2-10ths of an inch, when afterwards broken, presented but a slight deviation from a right line, and in no case did the acquired curvature exceed one fourth of a tenth. It was also remarked, that most of the fractures in breaking presented a regularity of grain throughout, resembling the structure of unhammered steel.

(Signed) "DAVID MUSHET."

The following comparisons are drawn from Mr. Mushet's trials and report:—The Ystalyfera cold-blast anthracite iron, as cast from the furnaces, is 50 per cent. stronger than the Ystwedwyn hot-blast iron, made with a mixture of coke and anthracite. It is stronger than the Ystwedwyn hot-blast iron, made with anthracite alone, by 75 per cent. The Ystalyfera cold blast anthracite iron, remelted in cupola, was found stronger than Mr. Mushet's results on the Ystwedwyn hot-blast iron, remelted in cupola, by 39 7-10ths per cent. The Ystalyfera cold blast anthracite iron, from the furnaces, surpassed Treagold's average of remelted iron by 71½ per cent. When remelted in the air furnace it surpassed Treagold's average by 80 per cent. Mr. Mushet's results on the Ystalyfera cold blast iron, compared with the extensive series of cold and hot experiments made by Mr. Rinkard and Evans, on their hot-blast iron, are as follows:—Cold blast iron, remelted in cupola, superior to hot blast remelted, in strength, all round, by 9 7-10ths per cent.; in deflection, 34 7-10ths per cent.; in power to resist impact, 7½ per cent. As compared with Mr. Fairbairn's well-known table of results on cast iron, the Ystalyfera cold blast anthracite iron was found superior to Fairbairn's hot blast iron trials, in strength, 44 7-10ths per cent.; in deflection, 74 6-10ths per cent.; in power to resist impact, 79 per cent. To Fairbairn's cold blast iron trials it was found superior, in strength, 44 7-10ths per cent.; in deflection, 19 6-10ths per cent.; in power to resist impact, 69 2-10ths per cent.

The Ystalyfera Iron Company, without lengthened comment on these results, beg to call the attention of engineers, iron founders, railway managers, &c., to the extraordinary merits of their patent elastic steel iron. As complaints are now universal of the weakness of modern pig-iron, they hope they have supplied a metal deserving to be received in the arts, as the strongest and most elastic machinery iron. In remelting, fusibility, soundness, extent of shrinkage, and toughness in turning, it is all the iron founder can desire. The North Abbey Iron Company respectfully direct the Ystalyfera Iron Company to refer to them for its working qualities in the country and tells. The Ystalyfera Iron Company recommend their No. 2, as an iron peculiarly calculated to remelt with smith hot-blast pig, to which it imparts elasticity and fibre. They recommend their No. 3 as an iron for the best and every useful purpose; it is very grey, but, from its strength, carries a honeycombed face. The Ystalyfera Iron Company are prepared to execute, with dispatch, orders for railway chairs, cast rails, iron plates, cast wheels, and similar articles, for which their elastic steel iron is singularly adapted. Their prices are very moderate.

Ystalyfera Iron Works, Swansea, December 21. 30

SMOKE PREVENTION.—CAUTION.—DIRCKS and Co., AGENTS for Mr. CHARLES WYE WILLIAMS'S PATENT FURNACE, hereby inform the PUBLIC, that they have NO CONNEXION with Mr. JOSEPH WILLIAMS, of Liverpool, nor have they ever authorised him to set up any of the said furnaces. They deem it here necessary to state the following facts:—

1. That Mr. Joseph Williams has no patent for any furnace or other invention.

2. That the patent which he affects to carry into execution was taken out by Mr. A. Rostz, of Liverpool, on the 5th of November, 1841, and of which he was then advertised as the agent.

3. That, under colour of such patent, Mr. J. Williams has been adapting various plans for introducing air to furnaces, one of which, by means of hollow bars, proved unsuccessful.

4. That the modification of the plan which he is now proposing to adopt, and as disparagingly by him, and which he introduced into the steam-packet the *Urgent*, is not only wholly distinct from Mr. Rostz's patent, but is a direct infringement of that granted to Mr. C. W. Williams. Those and the former engineers, Manufacturers, and others, against its use; and they further suggest the propriety of parties to whom Mr. Joseph Williams may apply, to call on him to exhibit his patented patent, or show his right to any patent, before they sanction such infringement on that of Mr. C. W. Williams as may, hereafter, render them liable to damages.

Mr. Joseph Williams has advertised "that the patentee have fortunes growing their invention." Mr. D. and Co., therefore, suggest, that he ought, after this notice, be required to state who are those "patentees," and what is the "invention" to which he here claims.

For the information of the public, D. and Co. observe, that the Patent of Mr. C. W. Williams consists in the introduction of atmospheric air, in small or thin jets, to the heated inflammable gases generated from coals in a furnace, the object being to effect the intimate intermixture or mixture of the air with such gases, without preventing that rending effect which takes place when air is admitted by large or wide orifices.

Mr. Joseph Williams affects to make a distinction between the introduction of hot, instead of cold, air, and for this purpose he merely raises the pipe which conducts the air to the air-box, or chamber, so as to be on a level with the fire-bars. This, however, is but a mere colourable pretence to cover the deception, the effect being the same in whatever situation such air conducting pipe be placed. 31

TO ANDREW KNYTE, ESQ.

Dear Sir,—As your name was mentioned in the advertisement which appeared in the Liverpool papers, from Messrs. Dircks and Co., respecting the infringement of my patent by Mr. Joseph Williams, under colour of his being agent for yours, I have to assure you, it never was intended to convey, in the broadest manner, an idea that you in any way encouraged or sanctioned Mr. J. Williams in the step he was taking. Your sentiments on that point, in your former communications to me, were quite sufficient, and your recent intelligent discovery of those documents only confirms me in the propriety of settling the matter right before the public. I deemed the necessity for forwarding immediately to the advertisement of Messrs. Dircks and Co., and take this public occasion of expressing my obligations for your so promptly discovering and confounding the piratical views of Mr. Joseph Williams, of whose conduct in this matter you so strongly expressed your disapprobation.

I am, dear Sir, yours, C. W. WILLIAMS. 32

SMOKE NUISANCE—ECONOMY OF FUEL WITHOUT THE NUISANCE FROM SMOKE, by C. W. WILLIAMS'S AIR FURNACE.—The adoption of this furnace ensures to the public by which the air is introduced to the gaseous matter evolved from coal, evidently a more perfect combustion of the gases, as expressed by Mr. Williams, in his Treatise on the Consumption of Coal. A furnace, constructed on this principle may, by permission, be daily seen in action at the Liverpool and Huddersfield Water-works, Duke-street, Liverpool.

For further information, apply to Dircks and Co., Cornhill, 9, Vere-street, Clare-market, Manchester; or to Mr. C. W. Williams, Liverpool. 33

NEW BUCKET FOR RAISING WATER TO BE EMPLOYED IN PUMPS.

[ABSTRACT OF SPECIFICATION OF MR. EMSLIE'S PATENT.]

[Communicated by the Patentee—in continuation from No. 280 of the Mining Journal.]

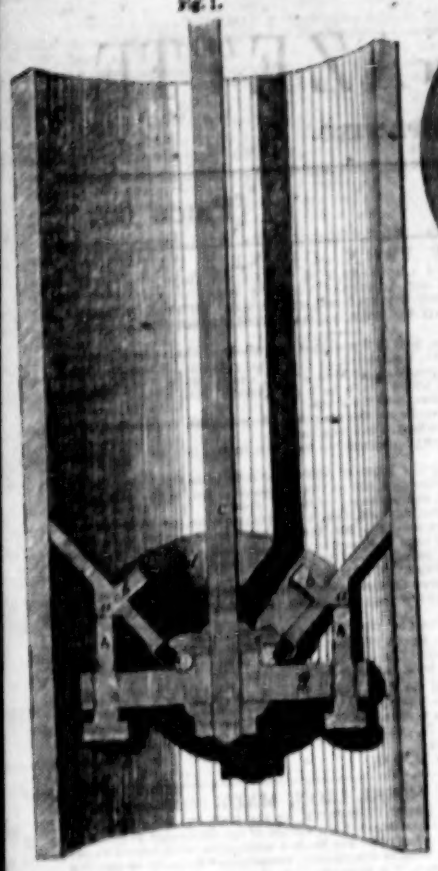

Fig. 1.

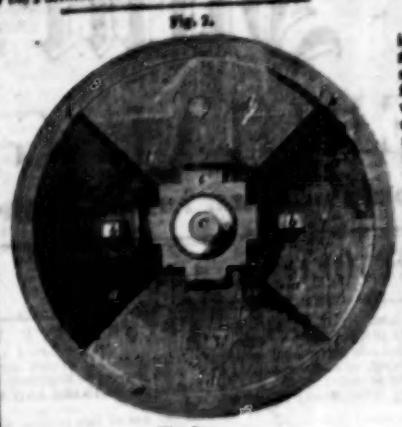

Fig. 2.

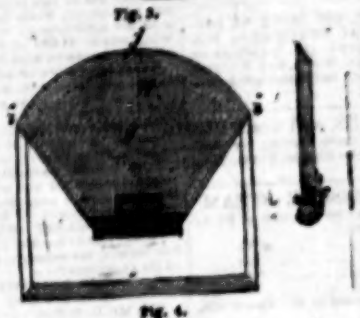

Fig. 3.

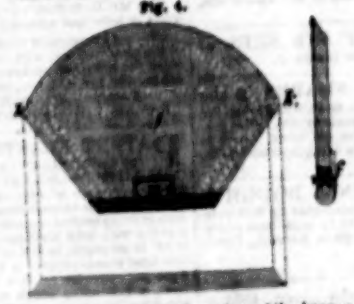

Fig. 4.

My invention relates to a mode of raising, lifting, or forcing water, or other liquid, whereby I am enabled to effect a great saving in the use of steam, or other power, as well as of fuel, where fuel is applied. In pumps, in which buckets are used, my invention or improvement consists in a new bucket, which is described in fig. 3, on the sheet marked A, hereunto annexed, and parts of it in figs. 1, 3, and 4, in the same sheet. Fig. 1 therein represents a vertical section, through the centre of a pump-barrel of one of my new buckets, made with four leaves or floats. *a a* are sections through the centre of two smaller leaves or floats, of each of which a representation, in a horizontal position, is given by the drawing H, in fig. 3, on the said sheet. *d* is one of two larger leaves or floats, resembling each other, of which a representation, in a horizontal position, is afforded by the drawing, J, in fig. 4, on the same sheet. These larger leaves or floats, exceed the smaller leaves or floats in size, only by the thickness of the material of which the smaller leaves or floats are composed, so that they may underlap the smaller leaves or floats, as represented at *k k*, in fig. 2, the smaller leaves or floats therein being marked *a a*. *b b* are projections on the smaller leaves or floats, *a a*, to prevent the smaller leaves or floats, after they have been raised up by the depression of the bucket, from clinging to the rod *c*, and thus preventing the action of the bucket on its upward stroke. The four leaves or floats are cut through, as represented at *u*, in figs. 1, 3, and 4, in order to form a hinge with *c*, in figs. 1 and 2, which is a clamp for hinging the leaves or floats, and connecting them with the rod *c*. For this purpose, the clamp *c* is curved at the ends, or hollowed out in a concave form on the under side, so as to fit and form a hinge, with the convex part of the aperture, *u*, made in the floats or leaves. The clamp *c* has also an aperture coinciding in the boss *g*, in the centre, through which the rod, *c*, passes; and that rod is formed as a screw at the bottom, and on this screw a nut works, which nut, by being screwed upwards, brings the clamp, *c*, close down upon the hinged part of the leaves or floats, and secures them tightly in their position, permitting them, however, to play upon the hinges. At the points where the leaves or floats are cut through, a plate, *f*, is secured to the back or underside of the aperture, as represented in figs. 1, 3, and 4. The floats or leaves may be set up at any angle, but that at 45 degrees will generally be found best; and in ordinary lifts, during the upward stroke, they rest against, and are entirely supported at the top, by the sides of the barrel, in which case the boss, *g*, may be round or square, or any other convenient form. In higher lifts, however, in order to take off a portion of the pressure from the sides of the barrel and the hinges, arms are extended, as shown in fig. 1; and by the dotted lines in that figure, through which the screws, *h h*, work, and by means of blocks (which, fig. 3, through which the screws, *h h*, work, and by means of blocks (which, in this event, must be cast on or cut out of the backs of the leaves or floats) afford them support. If such supports are applied only to some of the leaves or floats, the same should be applied to the larger leaves or floats, and the screws will enable the leaves or floats to be lowered, and thus expanded at the outer edges, to supply any slight diminution occasioned by wear, or adapt them to a barrel somewhat varying in dimensions. Where a great vibration of rod cannot be avoided, it will be necessary to put the rod, *c*, of the bucket in guards, either at the top or bottom of the stroke, or else to affix a loop to the bottom of the rod, *c*, which loop should be the size of the barrel. The bucket, as above described, may be made entirely of metal, wood, or other suitable substance, and I recommend the above mode of hinging the leaves or floats, although other methods may be adopted with efficacy. I do not confine myself to any particular number of leaves or floats, which may be varied according to circumstances. In manufacturing the bucket, after the leaves or floats are hinged upon the boss, I recommend that a mandril should be driven through the hole in the boss, having a screw thread with nuts working thereon on each side of the boss, in front of each of which screw threads are to be placed, with arms, radiating to a place, passing through the centre of the bucket; so that, by applying the nuts, the leaves or floats may be fixed to any angle, and, when put in the lathe, turned up to fit the pump-barrel accurately. Fig. 2 represents a horizontal section through a pump-barrel, with a view of the upper side of the bucket. The same figures, in letters 1 and 2, represent similar parts. The dotted lines, *e, e, e, e*, show the formation of the boss, *g*, under the leaves or floats. Fig. 3 represents one of the smaller leaves or floats, with a horizontal and vertical section, and the lines for geometrically describing the same. The chord of the arc, *i i*, is of the same length as that at *i i*, fig. 2; and the transverse sine of the arc, *j j*, is obtained by drawing a line at an angle of 45 degrees, from the sine of the arc, *j j*, in fig. 3. Fig. 4 represents one of the larger leaves or floats, with a horizontal and a vertical section, and the lines for geometrically describing the same. The chord of the arc, *k k*, is of the same length as that of *k k*, fig. 3, and the transverse sine of the arc is obtained as described in fig. 3. This bucket can be applied to all sorts of pump-barrels, without any alteration of the barrels. There is no friction in the downward stroke, by reason of the leaves or floats being pressed by the action of the fluid, and folding towards the rod, *c*; and on the upward stroke the friction is at a minimum, by reason of the thinness of the edges. Where sand or other substances abound in the fluid, the wear and tear will be less than that occasioned by the bucket now in use. My bucket cannot well choke; for, even should a portion of the rubbish, or other substance, get between the leaves or floats, a slight reversion of the stroke will displace it, bringing the rubbish or other substance up to the surface, when it will be projected with the fluid. As regards this part of my invention described above, and on the said sheet marked A, I claim, as my invention, the formation of buckets for pumps, whether made of metal or other substance, in the form set forth, not limiting myself to any particular number of leaves or floats, or the method by which they may be hinged, or the angle at which they may be set up, and the use thereof in all kinds of pumps, for the raising, lifting, or forcing of water or other liquid.

My invention relates to a mode of raising, lifting, or forcing water, or other liquid, whereby I am enabled to effect a great saving in the use of steam, or other power, as well as of fuel, where fuel is applied. In pumps, in which buckets are used, my invention or improvement consists in a new bucket, which is described in fig. 3, on the sheet marked A, hereunto annexed, and parts of it in figs. 1, 3, and 4, in the same sheet. Fig. 1 therein represents a vertical section, through the centre of a pump-barrel of one of my new buckets, made with four leaves or floats. *a a* are sections through the centre of two smaller leaves or floats, of each of which a representation, in a horizontal position, is given by the drawing H, in fig. 3, on the said sheet. *d* is one of two larger leaves or floats, resembling each other, of which a representation, in a horizontal position, is afforded by the drawing, J, in fig. 4, on the same sheet. 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QUALITIES OF IRON AND STEEL.

At a late meeting of the Geological and Polytechnic Society of Yorkshire, the Rev. Dr. Scoresby read a paper on "A Practical Method of Determining the Qualities of Iron and Steel." The lecturer observed that the principle which he had to submit to them here on the determination of the different qualities of the different numbers or kinds of cast-iron and malleable iron as produced from our different ores in this neighbourhood. In order, however, to render the subject intelligible, and the process satisfactory, he thought it would be useful to develope, in the outset, the principles upon which the mode of determining the qualities of the different substances was founded; for the methods of inductive science required that they should, at all events, be enabled to see some relation between the cause and the effect, the means and the end. After stating some particulars with respect to the nature of the magnetic power on which the determination depended, he proceeded to enumerate the foundation principle in his processes for determining the quality of iron—that whereas ferruginous substances generally were capable of the magnetic condition, those most perfectly ferruginous, or of the purest iron, were capable of the highest development of magnetic condition. If he brought a piece of cast-iron to the magnet, it would be found that it exhibited the magnetic character in a much inferior degree to that which malleable iron did. He might show that a piece of steel would exhibit it, by more contact, to a slighter degree than iron. (Dr. Scoresby took a piece of steel and placed it beside the magnet, after which it suspended a small key.) There was there a less tendency to get magnetism by juxta position than in iron, but there was a greater tendency to retain it; for whilst the iron lost its power by removal from the magnet, the steel did not. The more imperfect the iron, so as more having perhaps one-third, or two-thirds, or five-sixths of earthy substance—the more it was in a state of oxide—the less were its capabilities for showing the magnetic action. If they took cast iron they would find a susceptibility for the magnetic influence, but in a degree of repellibility very different from that of malleable iron. If they took malleable iron, of a quality pure and soft, they would find the highest capacity for the magnetic condition. Now, when he discovered that any portion of ferruginous substance in a body rendered that substance capable of magnetic development, and when he knew that malleable iron generally exhibited that in the highest degree, then he drew the inference, that that which was most perfectly iron would show the highest development of the magnetic condition; and, therefore, that the iron which should exhibit the highest magnetical capabilities would be the best quality of iron. There were two methods by which, on these principles, they might determine the quality. (The rev. gentleman then placed upon a stand a magnetic needle, or compass, having at the end a small graduated card as a scale. He then took up a small flat magnet and two small flat pieces of iron.) He had there two pieces of iron from the Bowling works; they were marked B and L, B being the mark for the best iron, and L one of the lowest quality. He had also a superior steel magnet of the same size. (He then opposed the magnet steel bar to the compass at some distance, and placing in succession upon it the iron plates B and L, he found that the needle resisted from the magnetic with L upon it further than from B, though placed at equal distances.) Then, upon the principle that he had asserted, the B iron, which fetched the highest price in the market, and which cost more in the manufacturing, appeared, from its greater resisting effect on the magnetic power, to be a more perfect quality of iron, to have less crude matter in it, or to be more purely ferruginous than the other. For, just as he had anticipated, the bar B proved to have higher capabilities of magnetic influence than the bar L. In order to ascertain this more conclusively he had got half a dozen plates of each kind of iron made, in order to get a more exact result, which would be more accurate than that obtained from a single specimen.

To illustrate his method of determining the capacity of the several plates of iron for magnetism, as shown by their respective controlling action on the steel magnet of like dimensions, the rev. gentleman showed that the action of the magnet alone upon the compass, at the distance of fifteen inches, produced a deviation in the needle from the proper meridian of about 22 deg., or two inch magnets to gether of 31 deg. 15 min. Having, with the scales of iron plates kindly furnished him by the managers of the Bowling Works, placed each of them in succession betwixt a pair of small magnetic steel plates, he found the average effect at the same precise distance to be, that the plate L reduced the action of the magnets on the compass to 9 deg. 45 min., and the plate B to 6 deg. 45 min., so that the mean reduction of power (the measure of the magnetic capacity) by L was 31 deg. 15 min.—6 deg. 0 deg. 22 min. = 22 deg. 53 min., and by B was 31 deg. 15 min.—6 deg. 45 min. = 24 deg. 30 min. Thus showing that the best iron had decidedly the highest magnetic capacity, and that the magnetic capacity of each kind had an analogous relation to the respective values of these two articles in commerce. Dr. Scoresby then went on, by the application of another principle, to investigate the quality of cast iron. For that purpose he had obtained six or seven sets of the same size of the two extreme qualities. One consisted of the best quality of cast-iron, the other was of inferior quality. They were of the qualities usually marked 1 and 3. There might be a considerable variety in No. 1 and 3; but the difference between 1 and 3 was sufficiently characteristic. There was also a considerable difference betwixt the two classes in price, as well as quality. No. 1 had less oxygen and a larger portion of carbon than No 3, being of a purer description. Without going particularly into the chemical constituents of iron, he might just observe, that as the best quality of iron had, in the other case, the highest magnetic principle, he expected he should, in this case of cast-iron, find a similar law. He treated it, however, in a different manner. He got the plates cast in the same way, in "green sand," so that they should be very hard, and might exhibit more of the nature of steel. His plan was to try them by magnetizing them and converting them into real magnets, being of opinion that as the best steel produced the best magnets, so the best cast-iron would produce the best magnets. His first experiment was by magnetizing them separately, and then carefully trying their powers by the compass. One kind, No. 1, had the power of causing the compass to diverge, on an average, 13 deg. 41 min., while No. 3 only caused it to diverge 13 deg. 7 min.—the difference between the two being as 136 to 100. Thus it appeared that the best iron had a power about one third greater than the power of the inferior. But he tried it another way. Having found that the accumulating magnetic capabilities of substances, in relation to their number, became another test of quality, he began to try them one upon another, taking the exact quantity the compass diverged after each addition. He put a second of the best quality, and found that the divergence of the compass was about 18 deg., while No. 3 was only 12 deg. 30 min. Six plates of the best cast-iron then combined, produced a deviation of 26 deg. 47 min., while the inferior only produced a deviation of 17 deg. 44 min., being 6 deg. less than the deviations produced a deviation of 26 deg. 47 min., while the inferior only produced a deviation of 17 deg. 44 min., being 6 deg. less than the deviations of the best series. He did not mean to say that the theory was established on which this principle of testing cast-iron was founded; it would require many more experiments; but yet, so far as his experiments had gone, the object he had in view was fully realized, for it had been shown that they could detect quality by a scientific mode, without breaking into metal—they could discern the different qualities in the kinds he had compared to a nicety, equal to that which would be shown by weighing the in gold and a sovereign. The lecturer next proceeded to the application of the principle to the determining of the quality of steel. With regard to wrought iron, it had been shown to have no permanent capabilities for retaining magnetic influence; it retained it so little that its retentiveness afforded no practical test of quality. When they tried steel, however, they found a certain permanency—no matter what might be the condition or quality of the steel, whether hard or soft, good or bad, it was capable of permanent magnetism. (He then took up two pieces of steel). He had there a piece of steel of a very fine quality and very soft; he had given it the magnetic power. He had also another piece of steel of like quality but perfectly hard, and it was also a magnet. Now hereto steel exhibited a peculiar difference from iron in its magnetic properties. Iron was capable of more magnetism when it was in contact with a magnet; but steel retained it on its removal from the magnet, whilst iron had it. If iron would not retain the magnetic influence which steel would, he first came to this conclusion, that the which was most perfectly steel would retain the most power (that is in like condition of hardness), and that that which had the least ferruginous matter in it would be the least permanent. (Dr. Scoresby illustrated this principle by many experiments, and then proceeded to explain his process for the determination of the hardness and temper of steel). He stated that the principle had long been held, that the harder the steel the more permanent the magnet. The truth of this he had tried in many experiments, and had always found it so. And now he came to the practical rule for knowing the hardness by the magnetic tenacity. If it was true that the hardest steel made the most permanent magnets, then it was only necessary to obtain a knowledge of the degree of permanency as the measure of the hardness.—[He then remagnetised two needles of similar quality, but different in hardness, and compared the weights which they respectively bore after being subjected to the action of the test-bar—when one had lost a little, the other the whole.]—Hence, he came to this conclusion, that the former was the hardest; which, on trial by other means, was proved to be the fact. He then applied the test of the deviation of the compass, and showed also, by this means, that the hardness of the steel might be discovered with great minuteness; so that, of 100 bars, or plates of the same kind, as to quality, they could easily be arranged in the order of their respective degree of hardness.

ORIGINAL CORRESPONDENCE.

ANTHRACITE AS APPLIED TO THE MANUFACTURE OF IRON.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Having, in your Number of the 17th instant, expressed my willingness to subscribe my mite in promoting a commission of inquiry into the merits of the respective patents of Mr. George Crane and Mr. Budd, of smelting iron with anthracite by the application of hot and cold-blast, I have looked for some authority being appointed to test the same, as also a party being named for receiving subscriptions. As I am solely interested as a proprietor of mineral ground, it is not to be expected that I can meet Messrs. Crane and Budd with an equal subscription, but my mite shall be forthcoming when the matter is put in form. I am glad to see the liberal spirit displayed by the respective patentees, and hope that you will have it in your power to announce the names of subscribers in an early Number, who may, by their aid, accomplish the desired object.

Swansea, Dec. 28. A Landed Proprietor.

[We have already expressed our willingness to afford every assistance in our power in attaining the "desired object," but are not aware that any further progress has been made, than the subscription of 100*l.* between Messrs. Crane and Budd. The anthracite proprietors of South Wales deserve not to have their minerals worked, for they are an apathetic lot, who will not help themselves. As regards ironmasters, we believe, with few exceptions, their desire is to keep to themselves their account of "profit and loss," or only to render it to the commissioners appointed under the Income Tax Bill. We hope, however, that the commission will be appointed, and should it even be confined to anthracite, it will be of much service; indeed, that is now the important question, more especially as we learn that the large furnace, at Ystalyfera sixteen feet bosh, was to have been put in blast some few days since, but with the results of which we have not yet been favoured.]

EMSLIE'S NEW MODE OF RAISING WATER.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—In your excellent Journal of the 17th inst., you did me the favour to publish a portion of my specification for improvements in pump work, as also to make a few remarks in your editorial column on its merits. The main objection, in your opinion, appears to be, the space required for the cisterns, or reservoirs, in which the water is discharged, and the frequent occurrence of these reservoirs. To the following remarks, in explanation thereof, I beg to direct your attention. For an engine on my principle to deliver, say 100 gallons per stroke, a space in the shaft, or in the sides of a shaft of a pit, for a water box and reservoir, would be about equal to twenty-four cubic feet, or say one cubic yard; and this, even if excavated in the sides of a shaft, on the worst description of material, at say every twenty-five feet or so, would be but of slight consequence in comparison to the advantages derived—viz., a saving of fuel to the extent of, at least, one-half over every description of engine, to raise an equal quantity of water an equal height, the doing away with all wear and tear of the packing of buckets, and the capability of turning or taking this apparatus in any direction, so that a vein of ore may be followed at pleasure, without, at the same time, sinking a vertical shaft. I should say, likewise, that the reservoirs and boxes may be so formed as to fit into a corner of a shaft, and thereby do away with all excavation into the sides thereof, and might be put down very readily, while the old pump work is in use. I consider, with the apparatus even so applied, there would be more safe spare room in a shaft than the present description of apparatus, with the oscillations of the pump rods, affords; a considerable space around the motion of the rods having to be allowed, to prevent bodies ascending or descending the shaft from coming in contact therewith, and meeting with damage.

London, Dec. 27. James A. Emslie.

TALACRE COAL AND IRON COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I perfectly agree with your correspondent, in last week's Journal, that a subscription should be entered into, to conduct the charges against Alderman Thomas Wood, in the Court of Aldermen. Unless something of the kind is done, he will again escape the hands of justice. As I suppose Mr. Ashurst, the solicitor, will take charge of such proceeding on the part of the shareholders, I will forward my subscription to him for that purpose. This will present a good opportunity for the friends of the worthy alderman to assist in a measure, undertaken for the purpose of re-establishing his character. D.

London, Dec. 30.

TALACRE COAL AND IRON COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Every one who knows anything of Ald. Thomas Wood must feel that there is some truth in your late observations and those of your correspondents; and that if there be any means of evading or stifling the inquiry before the Court of Aldermen, those means will be resorted to. He found himself obliged to originate, or propose, that a committee be appointed to report upon the charges brought against him—that he might have an opportunity of defending himself and clearing his character from aspersion and calumny; the committee was appointed—the inquiry commenced—but Mr. Wood, instead of offering every facility to an investigation which was to prove him worthy of the estimation of honourable men, has only placed impediments in the way, so that it would seem that the motion was not made with the honest intention of giving facts as they are, thereby enabling the court to arrive at a sound and unbiassed judgment, but rather with the expectation, that his affected anxiety for inquiry might be accepted as full and sufficient proof of his innocence. It was proposed in your Journal of last week that a barrister should be employed by those who have suffered by his chicanery; that would be a good course to pursue if the court would receive a gentleman so authorised, but I much question if they would; the court has at present no cognisance of other parties, for if the alderman who demands the inquiry fails to bring forward the papers relating to the charges, and the persons who made them, or fails to do his utmost to produce them, no other conclusion can be come to, than that he has not satisfactorily disproved the statements made respecting him. The committee have a difficult and extremely unpleasant duty to perform, and, to render it more distasteful, Alderman Wood, after demanding the inquiry, quarrels with them because his wish has been acceded to. A barrister would certainly relieve the committee from the cheerlessness of the task imposed upon them—could place the facts fairly before the court—and, by collating the facts from the voluminous matter in which it suits Alderman Wood to conceal them, might enable them to arrive at an impartial and just conclusion; but it seems to me, that the committee being appointed to inquire into certain facts, which concern the honour of the court, as well as the personal character of one of its members, are bound to prosecute the inquiry with every aid and advantage likely to elicit truth, and should, consequently, be competent, if themselves, to appoint a gentleman to report upon the charges, Mr. Wood retaining his present means of defence; for, as to leaving the matter to his own affidavit, it is too preposterous to think of. A portrait of Ald. Thomas Wood, drawn by himself, could only be intended to mislead; by it no one could ever form a true idea of the original; he hopes then to be released from his present dilemma, in the same way as he has loosened hitherto without loss, while his unfortunate dupes have been ruined. To me it appears that the committee should themselves name a barrister to assist in the inquiry, but, by whatever provided, it seems the most likely step to bring the case properly before the court. Should the shareholders employ an advocate, my mite shall not be wanting. Another of the Sufferers.

Dec. 29.

[For continuation List of "Original Correspondence," see p. 68.]

PROCEEDINGS OF PUBLIC COMPANIES.

IMPERIAL SLATE COMPANY.

The half-yearly general meeting of this company was held at the offices, in Robert-street, Adelphi, on Friday, the 30th instant.

W. R. Collett, Esq., M.P., in the chair.

Mr. W. Headden (the secretary) having read the advertisement, and the minutes of the former meeting, the Chairman said, that, according to the usual custom, the report of the directors should be now read, but as that of the resident manager at the works was much more important, he would read that first to the meeting, and make some comments as he went on, which he would elucidate by means of the diagram in the room.

From this document of Mr. George Creevy, which gave a very able description of the present state and prospects of the works at Killaloe, in the county of Limerick (but for which we have not space), and the remarks of the chairman, it appeared that by means of a railway, and very improved machinery, considerable time was saved in working the quarry, and such reductions in labour effected, that the company could now afford to sell their slate 50 per cent. cheaper than they could at the commencement.

Mr. Headden (the secretary) then read the following report and balance-sheet:—

REPORT.

The directors have great pleasure in again meeting the shareholders of the Imperial Slate Company. The substance of their usual report has been anticipated by the recent statement of their chairman, and by the prospectus lately issued to the proprietors. The last report from the resident manager, dated December 24, 1842, will, moreover, fully explain every particular connected with the present state of the undertaking. It is, therefore, unnecessary, on the present occasion, for the directors to do more than remind the proprietors that the manufacture of their slate has very materially improved; that the sales both at the quarries and at different depôts are gradually progressing; and that, in the present year they have more than equalled the combined sales of the two preceding years. The directors beg to express their sincere acknowledgments to his Excellency, the Lord Lieutenant of Ireland, for the prompt and gracious manner evinced by him in granting the prayer of the memorial for the establishment of police barracks at Curraghbally Quarry. Their best thanks are also due to the Board of Ordnance for a favourable report on the quality and improved manufacture of the Killaloe slate, and for their introduction to the Government contracts. The balance-sheet now submitted to you shows a clear profit of 27*l.* 5*s.* 9*d.* on the years' standing thereby enabling the directors to recommend that a dividend of 6 per cent. be paid out of the same on and after January 1*st*, 1844, at the office of the company. However satisfactory this result may be, the directors have great and well founded hopes that larger returns are yet in store, as every liability has been duly met, and every obstacle effectually surmounted.

Balance-sheet, from 31st May to 30th November, 1842.

Nov., 1842. Dr.			
To proprietors of joint-stock	£42,315	0	0
Sundry debts due to tradesmen and others	499	19	9½
George Creevy	85	3	4
First, second, and third dividend	0	16	9
Profit and loss	8,775	9	9½
Total	£43,667	0	10
Cr.			
By outlay of capital in the purchase of quarries, &c.	£34,916	17	9½
Improvement on works, including new offices, railways, &c.—less 10 per cent. written off	1,349	1	1½
Machinery, materials, &c.—less 10 per cent. for depreciation	1,497	3	6
Furniture—less 10 per cent. for depreciation	169	12	7
Stock of slates on hand at the works and the several depôts—less 7½ per cent. for breakage	10,033	5	6½
Book debts	3,151	3	1
Cash at bankers and in agents' hands £2325 7 3½			
Exchequer Bills 1870 17 0			
Bills receivable 1246 9 0 —	5,532	3	3½
Total	£43,667	0	10

Abstract of Profit and Loss Account.

Nov., 1842. Dr.			
To R. E. Heathcote, travelling agent	£ 99	4	9
Creevy, commission account for management	351	7	0
Salaries, including directors, auditors, secretary, and agent in Ireland	159	7	8
Travelling expenses	60	15	9
Charges account, including rent of office, stationery, advertisements, printing, petty disbursements, &c	70	18	1
Depreciation in value of machinery, furniture, and amount written off improvement account, and allowances on commission sales	393	3	9
Expenses on account of the several depôts, including, freight, salary, and commission	434	5	7½
Outstanding debts prior to April, 1841	33	19	3
Balance	2775	9	9½
Total	£4264	5	7
Cr.			
Amount of balance to 31st May	£1113	6	11
Interest	27	7	4
Killaloe slate quarries	3123	11	4
Total	£4264	5	7

Mr. Ogle asked if 7½ per cent. was sufficient allowance for the breakages?—The Secretary: Oh! certainly; for the last year they did not amount to 5 per cent.

The Chairman said, he hoped the report from the works would speak for itself. Every reduction had been made in the balance-sheet that was possible, and, notwithstanding the cost of new machinery and various other debts, which had all been settled, there still remained this profit of 277*l.* 9*s.* 9*d.* He should, therefore, recommend a dividend, and he hoped the meeting would sanction the proposition.

Mr. Thompson asked how many were the shareholders?—The Secretary: About fifty one or fifty-two.

Capt. Tyrell (of the Guards) moved, "That the report of the directors, and the balance sheet, be adopted, printed, and sent to each proprietor."—The motion, having been seconded by Mr. Sandars, was passed unanimously.

The Chairman said it was extremely satisfactory to find such a resolution coming from gentlemen, who had taken upon themselves the arduous duty of investigating all their complicated accounts, and that it was the best proof that the affairs were as they should be, when they found their adoption moved for by the auditors.

Capt. Brittain observed, that he would not allow that opportunity to pass, without thanking the directors for the great reductions they had effected, and for the candid reports that had been given to the meeting. He would say that of all the companies he knew, not one was managed so well as that company.—In reply to a Proprietor, Mr. Margary said, that the auditors went out annually; but Mr. Ogle remarked, that he had no doubt the proprietors would confer them to remain, being conversant with the accounts.

Capt. Brittain: The question was only asked in a friendly manner.

Mr. Benjamin Collett then moved, "That a dividend, at the rate of 6 per cent., for the past year be declared, to be payable after the 13th of January.—The resolution, having been seconded by Mr. Margary, was passed unanimously.

It was moved by Capt. Brittain, and seconded by Mr. Ogle, "That the best thanks of the proprietors were due to the directors, for their unwearied and successful exertions, and most economical management of the affairs of the company.—The motion was agreed to unanimously.

A Proprietor asked if they had the 1500*l.* in Exchequer bills at the present time?—The Chairman said they had, and they required a large sum continually to pay dividends and so forth, for which an amount in Exchequer bills was reserved. Without any charge of self-adulation, he might say, with their present limited capital, they had done a great business, which was likely to be much increased, through the introduction of the slate to the notice of the Board of Ordnance, but they were not doing that business which might be done with a larger capital. After the payment of a dividend, and an expenditure of 700*l.* or 800*l.* per month, their means must be very limited, considering the increasing demand for the slate of the company. There were still 926 shares in the hands of the company, which remained out of 15,000, which, if realised, would enable them to keep pace with the increased demand which was extending itself to most parts of Ireland. The question of a charter had been mooted, but he did not see its necessity, as that was a ready money concern, and every thing was paid for on the estate; besides, they had the power to give up the property at a short notice, so that the proprietors need not be alarmed about liabilities. The only desideratum was a larger capital.

Mr. Ogle said it was better not to meddle with their deed of settlement. As to the charter it would be of no use to that company, and an expense of 800*l.* or nothing.—After some further observations, a vote of thanks was passed to the worthy chairman, and the business terminated.

LONDON AND CROYDON RAILWAY COMPANY.

A special meeting of this company was held at the London Tavern, Bishopsgate-street, on Tuesday, the 27th inst., for the purpose of submitting to the proprietors the plan recommended to be adopted in the present state of the affairs of the company.—William Arthur Wilkinson, Esq., in the chair.—Mr. Young (the secretary) read the plan of the directors, which, after alluding to the offer of 60000*l.* per annum on the part of the Croydon Company to the Greenwich Company in lieu of all toll, which was rejected, and all or fruitless negotiations, so as to cheapen fares to the public, concluded by a recommendation to discontinue the carrying trade of the Croydon Company in the present state of affairs, under the firm impression that the traffic between Croydon and London cannot be profitably carried on by any parties under the operation of a fixed toll of 4½*d.* per passenger. The number of passengers carried on the Croydon line in the past six months was 180,502, paying 19,845*l.*, which, after the expenses of carriage and the toll to the Greenwich Company, left only a profit of 7*l.* Supposing a double number travelled in the same time at one third less fare, the Greenwich toll being still 4½*d.*, the loss to the Croydon Company would be 42*l.* The toll that would be to the Croydon by the Brighton Company, from 1st August to 6th December (as 1200*l.* 0*s.*, and by the South Eastern Company from 1st of August to 30th November, was 2615*l.* 2*s.* 2*d.* The toll payable to the Greenwich Company has already fallen from 6000*l.* per annum under a 3½*d.* toll, to 3000*l.* per annum when a 4½*d.* toll was imposed.—After a long conversation between the chairman and proprietors on the subject of the immediate abandonment of the traffic, which was proposed, as the company was losing weekly, an addition was proposed by Mr. Ricardo, that though the meeting approved of the carrying trade being relinquished, advised its not being carried into effect till the 25th March, when a committee (which was appointed at the meeting) would, in the mean time, confer with a committee of the Greenwich proprietors, to obviate, if possible, a course so detrimental to both companies.—A vote of thanks was then passed to the chairman and directors, and the meeting adjourned.

CANADA COMPANY.

A half-yearly court of this company took place at their establishment, St. Helen's-place, on Thursday, the 29th inst., and was well attended. The chair was taken by Charles Franks, Esq.—Mr. Perry (the secretary) having read the notice convening the meeting, the Chairman said the meeting was called for two objects, the first was for the election of a new director, the other for the declaration of the half yearly dividend. They would first proceed to the election of a director, in reference to which he would state that an alteration had been made in the bye-laws, by which they now had power, except in cases where there were more candidates than vacancies, to elect such director or directors by a show of hands.—The Secretary read the alteration in the bye-law, which was made on the 30th of March, 1842, and which the Chairman stated was confirmed at the meeting in the following July.—A show of hands was then taken for Mr. Ambrose Humphrys, who was unanimously elected a director in the place of Mr. Hallett, deceased.—The Chairman said, he should be happy to give the latest information as regarded the sales of land, and money received. Up to the 24th of November, the sales of land, and the crown reserves, had been 33,262 acres; the same in 1841 were 33,339 acres; to the first of which, they had still to add those for the month of December. In the Huron districts, in the year ending October, 1841, they had sold 8667 acres; in the year 1842, up to the same period, they had sold 25,655 acres, having thus an increase of nearly 20,000 acres over those of 1841. With a view to grant more facilities to the purchasers of land, the directors had agreed to distribute the payments into ten or twelve, instead of five instalments. They had also disposed of several town lots—in the year 1842, thirty nine Town lots, value 708*l.* 0*s.* 6*d.*; in the year 1841, sixty town lots, value 923*l.* 15*s.* 9*d.*—Mr. Baildon wished to know the aggregate amount of the receipts, as far as could be ascertained, for the year 1842.—The Chairman replied, that it was 25,926*l.* 4*s.* 10*d.*, being an increase over the past year of 2550*l.* 19*s.* 4*d.* The proprietors would judge, from that general statement, of the propriety of continuing their dividends as proposed.

After an amicable discussion of the affairs of the company, Mr. Cuthbert moved, "That a dividend be declared payable on the 10th of January next, at the rate of 6 per cent. per annum, upon the paid up capital of the company," which was seconded by Mr. Baildon, and passed unanimously.—A vote of thanks to the chairman and directors of the company, for their zeal and ability, was moved by a Proprietor, who also expressed his regret at the demise of Mr. Hallett, their late director, which was at once seconded, and carried, when the meeting adjourned.

YORKSHIRE DISTRICT BANKING COMPANY.

The shareholders of this company have been called together for Friday, the 3*d* of February next, to receive the report of the directors, and to elect auditors. The circular, which has been issued by the manager, states, that "in consequence of the depreciation which has taken place in the value of Yorkshire District Bank Shares, more especially since the disclosures with reference to other banking establishments, the directors hereby give notice to the shareholders, that it is their intention, at the above meeting, to solicit the appointment of a committee (independent of the directors), to investigate and report upon the present state and future prospects of the bank."

DUBLIN AND LIVERPOOL STEAM-SHIP BUILDING COMPANY.

The half-yearly general meeting of the proprietors in this company was held at the office, on Eden Quay, Dublin, when the report of the directors was read, and the usual dividend of 3 per cent. for the half-year declared. There having been some vague rumours that a suspension of the dividend might, at a future period, take place, some little speculation in shares had been incited, and the report, therefore, assured the proprietors that every engagement made with the navigation companies, by this company, must and would be performed to the letter, and that all loss arising from fire, decay of vessels, &c., would be borne by those companies, and that the shareholders might feel satisfied that the present prospects of the company were of the most cheering nature.

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

Dec. 26.—The lode in the 110 fathom level west is ten inches wide, and worth 8*l.* per fathom. At the 100 fathom level west the lode is one foot wide, and worth 7*l.* per fathom; at this level east the lode is still small and unproductive; at the cross-cut at this level, towards the Flapjack lode, the ground continues hard; the lode in the winze, sinking below this level, is seven inches wide, and worth 9*l.* per fathom; the lode in the stopes, in the back of this level, is eighteen inches wide, and worth 34*l.* per fathom. In the eighty and ninety fathom levels, west of Hitchins's shaft, no alteration. The lode in the winze, sinking below the ninety, has not yet been taken down; in the eastern stopes, in the back of this level, the lode is eighteen inches wide, and worth 34*l.* per fathom; the lode in the middle stopes, in the back of ditto, is twenty inches wide, and worth 40*l.* per fathom; the lode in the western stopes, in the back of ditto, is eighteen inches wide, and worth 36*l.* per fathom. In the eighty fathom level east the lode is ten inches wide, and worth 6*l.* per fathom; the lode in the stopes, in back of ditto, is fifteen inches wide, and worth 24*l.* per fathom. In the eighty cross cut to the north lode, and sixty-two fathom level east, no alteration. The lode in the twenty fathom level east is sixteen inches wide, intermixed with a small quantity of ore. In the deep adit east the lode is eighteen inches wide, chiefly capel and spar. The pitches are looking favourable.

F. Phillips.

REDFORD UNITED MINING COMPANY.

Dec. 26.—At Wheal Marquis the lode in the forty fathom level east is about two and a half feet wide, composed of spar, wundie, and fine stones of copper ore. In the thirty fathom level east the lode has not been taken down since last report. In the new engine-shaft (eastern part of the mine) the lode is very much improved, being at present upwards of two and a half feet wide, composed of gossan, wundie, and rich stones of grey and black ore, intermixed throughout, and altogether may be said to be worth 20*l.* per fathom. The general character of this lode strongly indicates a productive deposit at an increased depth; the pitches are just the same. Our next sampling, on the 13th of next month, will be about thirty tons. The prospects of this mine are now very much improved from the discovery above noticed.

J. H. Hitchins.

TREGOLLAN MINING COMPANY.

Dec. 26.—The lode in the engine-shaft, sinking below the sixty-two fathom level, has a very favourable appearance, producing about seven tons of ore per fathom. The lode going east of the sixty-two fathom level is two feet wide (the carry part), and producing three tons of ore per fathom; we have done nothing going west at this level during the past week, from inconvenience at the commencement of sinking the shaft. The lode in the fifty fathom level east has a very promising appearance, and producing about a ton and a half of ore per fathom.

James Nicholls.

TARLEIGH CONSOLS MINING COMPANY.

Dec. 24.—At Carlotter, at the eighty east, the lode is improving in size and quality; it is about eight inches wide, all sorting work for ore, and of a pretty good quality. At the eighty west ore are not yet into the lode. The seventy west is worth 6*l.* per fathom. The sixty is driving to get under Gordon's shaft. The fifty west is three feet wide, with a branch of ore on the south part, and worth 5*l.* per fathom. At Good Fortune the forty-four east is employed for the present, and the men are put to the fifty, west of engine-shaft, and as yet have broke no lode. At the forty-four west the lode is worth 6*l.* per fathom. At the thirty-four east the lode is worth 7*l.* per fathom.

W. Symons.

TRETOIL MINING COMPANY.

Dec. 26.—In consequence of altering the pitwork, we have not been able to make much progress in the past week in the forty fathom level, east of Williams's shaft. The lode in Heywood's shaft, sinking under the forty fathom level, is eighteen inches wide, tributing ground. The lode in the forty fathom level, east of Heywood's shaft, is nine inches wide, very good tribute ground. The lode in the forty fathom level, west of Heywood's shaft, is ten inches wide, good tribute ground. The lode in the thirty fathom level, east of Heywood's shaft, is one foot wide, producing a small quantity of ore. We have not discovered any more lode in driving south on the cross-course at this level. The tin lode, at the adit level, east of Morcom's shaft, is much as last reported.

H. Williams. J. Morcom.

UNITED MINES MINING COMPANY.

Dec. 27.—*Seventy Fathom Level*—The lode in the eastern end is four feet wide, two and a half feet of which is producing ore, with a promising appearance; in the western end the lode is three feet wide, with stones of ore. *Sixty Fathom Level, Eastern End*—Lode two and a half feet wide, one foot very good ore; western end, lode four feet wide, very throughout, of low quality. *Fifty Fathom Level*—Lode four feet wide, three feet good ore. *James's Shaft*—Lode two and a half feet wide, one foot good ore. *Forty Fathom Level*—No alteration in this end for the past week.

N. Langdon. S. H. Pearce.

WEST WHEAL JEWEL MINING ASSOCIATION.

Dec. 26.—The ground in the eighty-five cross-cut south is a little harder. The seventy east, on Wheal Jewel lode, is worth 10*l.* per fathom; ditto west, appears to be opening. The fifty-seven east is worth 10*l.* per fathom; the winze under this level is worth 20*l.* per fathom. The winze under the forty-two, east of Little cross-course, is worth 20*l.* per fathom, and the stopes in the back of this level are worth 25*l.* per fathom. No other lode or winze taken down since our last.

S. Lean.

TINCROFT MINING COMPANY.

Dec. 26.—The lode in the new engine-shaft, sinking under the sixty fathom level, is two feet wide, six inches on the north side producing good ore, at present worth about 10*l.* per fathom, but appears to improve as we sink. The sixty end east is worth 15*l.* per fathom; same level west worth 6*l.* per fathom. The stopes from the winze, in the bottom of the fifty, are worth about 20*l.* per fathom. The fifty end east is still unproductive, although more promising than ever we have seen it before to the east of the cross-course. The rise in the back of the fifty west is worth 30*l.* per fathom; the winze sinking on this rise, from the forty, is worth 40*l.* per fathom. The forty end west has a more promising appearance than for some time past, worth 3*l.* per fathom. The thirty end, west of North Tincroft shaft, is worth about 10*l.* per fathom. At Palmer's shaft there is no alteration; the ironstone is still in the shaft; we consider it a favourable omen to find an ironstone so near the lode. No alteration in south mine.

William Paul.

CORNUBIAN MINING COMPANY.

Dec. 26.—The seventy fathom level, west of engine-shaft, is favourable for driving; the lode is two and a half feet wide, composed of strong spar, wundie, &c., and letting down abundance of water, which we consider a good indication; we shall soon cut south through Chiverton lode. The lode in the sixty fathom level is two feet wide, producing some good work, but according to the inclination of the west run of lead gone through the winze, we have some fathoms to drive before we meet with it in this level. We have communicated the winze to the sixty fathom level, and have now a full supply of air. The fifty fathom level, west of Murray's shaft, is yielding occasional stones of lead. The tribute pitches in the back of the sixty fathom level are giving fair a quantity of work. The forty tons of lead sold the 24th inst., at 14*l.* 9*s.*, shall be forwarded as soon as we can procure a vessel.

J. Webb.

TAMAR SILVER-LEAD MINING COMPANY.

Dec. 26.—In the 120 fathom level the lode is eighteen inches wide, still producing a small quantity of silver-lead ore. In the 113 fathom level the lode is about the same width, producing good work. In the 105 fathom level the lode is two feet wide, producing some good work. In the ninety-five fathom level the lode is just the same width, carrying two branches of silver-lead ore. In the eighty five fathom level, the lode is still small and poor. In the seventy-five fathom level, the lode is somewhat improved since my last report; it is now nearly eighteen inches wide, producing saving work. In the sixty-five fathom level the lode is two feet wide, chiefly composed of caple, with two branches of ore. In the fifty five fathom level the lode is one foot wide producing a little ore, but poor. In the forty-five fathom level the lode is two feet wide, composed chiefly of soft spar, with a little ore; next Thursday we expect to sample two parcels of silver-lead ore, when the quantity will be about eighty five tons. At the north mine, we are getting on very well with sinking the engine shaft. On Friday last we set to the sumpmen, to sink eight fathoms for 115*l.*, which, when done, will complete the thirty fathom level, leaving one fathom for a fork.

James Sprague.

FOREIGN MINES.

REAL DEL MONTE MINING COMPANY.

The following has just been received from the company's agent at Vera Cruz, dated the 16th November:—"According to my last advices from Real del Monte, the company's waggons were to leave for this on the 8th instant, with about 145 bars of silver, which, after receipt, I shall forward in the customary manner per first steamer."

MINING NOTICES.

Black-Band Ironstone—*(From a Correspondent).*—We are informed that the specimen of black band, of which Mr. Mushet gave an analysis in our Number of the 17th inst., was from a vein found on the mineral property worked by the Valcedwys Company, by the furnace manager of those works the operations of which company are confined to the manufacture of anthracite, hot blast iron, as noticed in our advertising columns.

Black-Band at Cwm Avon—*(From a Correspondent).*—We understand the Governor and Company of Copper Miners in England have found a large tract of black-band in their Cwm Avon mineral property, and that they have proved its value by the reduction of a portion of the ore into iron.

Black-Band Ironstone.—The *Monmouthshire Merlin* says the discovery of this ore in Monmouthshire is likely to lead to most important results. A vein has been discovered at Cwm Bran, varying from four to five inches thick, overlying coal six feet in thickness, and producing from some assays which have been taken, 28 per cent.; should this ironstone be discovered to be general throughout the county, the iron of Monmouthshire will, no doubt, be ranked not only among the cheapest in the world, but the best.

Cambrian Iron and Smelting Company.—We are informed, that the quantity of iron made in one furnace (No. 4) in the Cambrian Iron-Works, during the week ending December 10th, was 112 tons 1 qr. 3 lbs. of quality No. 3, being the greatest quantity produced since the blowing in of the furnace. The circumstance of this company having, in these times of depression in almost every branch of commerce, embarked a large capital, inspires the numerous workmen and the inhabitants of that neighbourhood with the laudable hope and desire that, under the able superintendence and management of J. Petherick, Esq., with the assistance of Mr. M. Evans, furnace manager, the company may at least derive a remunerative return. The above, with other facts coming under our observation, are indications of some slight improvement in the iron districts.—*Cambrian.*

The Macedonian Copper Mines.—These works, it is stated, have been again opened, and not without some signs of future success. M. Pauliny, of Vienna, is to be placed in conjunction with some high functionary of the Turkish Government at the head of the mining department, and it is expected that 70,000 quintals of copper will be taken from the mines in the course of the next year.

Leasingthorne Colliery—Clarence Railway.—A steady and gradual improvement in the resources of this railway appear to be taking place; on the 15th instant the Leasingthorne Colliery sent down their first train of thirty waggons for shipment at Port Clarence, to commemorate which event the principal owner of the colliery (Mr. Reid, of Newcastle), with a numerous party partook of an entertainment at the Vane Arms, Stockton. The coal is said to be most excellent in quality, and, from the great demand expected, is likely to prove an immense acquisition to the railway.

MINE ACCIDENTS.

Fenwick Colliery, Belford.—Two brothers, Thomas and Andrew Alexander, met their deaths at this colliery by drowning, they were at work in a drift where the seam of coal was only seventeen inches thick, when the water broke in from an old working on the north of the shaft, with such rapidity, that it was with the greatest difficulty the other men who were at work escaped the same fate.

Silverdale Colliery.—On the 15th inst., as two men and a boy were at their work, a quantity of "lane" fell upon them, one of the men fortunately escaped unhurt, but the other, William Hewetson, who has left a widow and four children, and the boy Taylor, were taken out quite dead.

NEW PATENTS FOR DECEMBER.

[From the Mechanics' Magazine of this day.]

J. Greatham, engineer, Liverpool, for certain improvements in the construction and arrangement of the engines and their appendages, for propelling vessels on water.

H. P. Valle, gentleman, Alpha House, Old Kent road, for improvements in combining machine oil instruments for obtaining power.

J. Dickson, ironmaster, Southwick, Shelton, for an improvement in the manufacture of malleable iron.

W. G. Kneller, chemist, Wimbledon, for improvements in the manufacture of soda in the evaporation of brine, and in the concentration and manufacture of sulphuric acid.

J. Brown, of the firm of Messrs. Boulton, Watt, & Co., engineers, Soho, Birmingham, for certain improvements in steam engines, and steam propelling machinery.

R. Wilson, engineer, Manchester, for certain improvements in locomotive and other steam engines.

J. G. Rothwell engineer, Manchester, for certain improvements in the manufacture of malleable bosses and tires for wheels, and in the method of fixing the same for use, and also improvements in the machinery or apparatus to be employed therein.

C. H. Wild, engineer, Birmingham, for an improved switch for railway purposes.

J. Morris, merchant, Catherine-street, for improvements in locomotive and other steam engines.

W. G. English, distiller, Kingston-upon-Hull, for improvement in purifying spirits of turpentine, spirits of coal, and naphtha—being a communication from abroad.

C. H. E. Carter, gentleman, Austinfriars, for improvements in the manufacture of sulphuric acid—being a communication.

T. Winchester, hatter, Bond-street, for certain improvements in steam boilers, and in the methods of employing steam or other power in locomotive purposes.

G. H. Watson, gentleman, Lancaster square, for certain improvements in steam generators.

J. Squire, engineer, Penghill, Cornwall, for certain improvements in steam boilers or generators.

A. C. Hall, M.D., Cliff-st.-street, for improvements in electrical apparatus for medical purposes, and in the application thereof to the same purposes.

Mining in America.—Advices from New York, dated the 15th inst. state, that "the extent of the mining business, and the importance to the country, may be judged from the fact, that the produce of the lead mines alone has this year been worth almost 1,500,000 dollars, and this at the low price which the article has borne."

PUBLIC COMPANIES.

MEETINGS.

Preston Gas Company	Preston	Jan. 2 ... 12.
European Life Insurance Company	18, Chatham place, Blackfriars	2 ... 1.
London Dock Company	Dock house, New Bank buildings	3 ... 1.
Colonial Bank	London Tavern	4 ... 12-1.
Worcester and Birmingham Canal	Birmingham	3 ... 11.
Royal Santiago Mining Company	18, Broad-street buildings	4 ... 1.
Anglo-Mexican Mint	9, New Broad-street	4 ... 2.
Imperial Life Insurance Company	Ian-court, Cornhill	4 ... 12.
Metropolitan Building Association	London Tavern	4 ... 2.
Mining Company of Ireland	27, Lower Ormond Quay, Dublin	5 ... 1.
Glasgow, Paisley, & Greenock	Star-court hall, Greenock	6 ... 12.
Wicklow Copper Mine	11, Lower Ormond Quay, Dublin	12 ... 2.
Union Bank of Australia	38, Old Broad-street	23 ... 1.

CALLS.

Mexican Company	£7, 10s. per share	Dec. 31	As usual.
Newcastle & Darlington R'way	£5. per share	Jan. 2	Sir R. C. Glyn and Co.
London & Birmingham R'way	£ 5. per share	10	As usual.
Great Western Railway	£5. per 5th sh.	12	As usual.
Edinburgh & Glasgow Railway	£8. 10s. per share	10	Office.

DIVIDENDS.

Bank of British North America	7½. per share	7, St. Helen's place Jan. 5.
National Provl. Bank of England	6 per cent.	111, Bishopsgate-st. 15.
Imperial Slate Company	6 per cent.	Offices 15.

MEETINGS OF SCIENTIFIC BODIES.
IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Westminster Medical	Kaster Hall	Saturday	8 P.M.
Entomological	17, Old Bond-street	Monday	8 P.M.
Chemical	Society of Arts, Adelphi	Tuesday	8 P.M.
Geological	Somerset House	Wednesday	8 P.M.
Zoological	57, Pall-mall	Thursday	8 P.M.
Botanical	20, Bedford-street, Cov.-g.	Friday	9 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

NOTICES TO CORRESPONDENTS.

The Mining Journal is regularly published about Two o'clock on Saturday afternoon, at the office, No. 26, FLEET-STREET, where it can always be obtained, and there is no excuse for irregularity in its supply, in town, other than neglect on the part of the agent through whom it is ordered; but, as respects its transmission to country subscribers, the blame is shared with the Post office authorities.

More extensive premises than those lately occupied being found necessary, the establishment of the *Mining Journal* is REMOVED TO 26, FLEET-STREET (opposite St. Dunstan's Church).

"An Old Subscriber" (Yarmouth) is thanked for his suggestions, which shall receive attention.

PATENT WIRE ROPE.—We have received a letter from Mr. Mathews, which we must decline replying to, inasmuch that our columns are at all times open, and we cannot allow ourselves to be compromised by any private communications. It is entirely a question between parties, and does not involve, in the slightest manner, the merits of the patent in question.

The series of papers, entitled "Data for the Use of Blast-Furnace Managers," by Mr. R. D. Rogers, of Nantyglo, will be continued in an early Number.

ELECTRO-METALLURGY.—The communication from Messrs. Elkington and Co., Moorgate-street, shall appear in our next; as also those of "Aristides," on M. Agassiz's New System of Philosophy, and "A Workman," on the Formation of Mineral Deposits.

We were unable to complete the Index to the last volume so satisfactorily as we could wish in time for our present publication; it will, however, accompany our next, for which purpose another Supplement will be given.

MANUFACTURE OF CAST-IRON.—Mr. John Hart's papers, on the Manufacture of Cast-iron, will be resumed in our next.

ANCHOR LIFE ASSURANCE COMPANY.—We know nothing whatever of this company, or "the respectable body of gentlemen who have obligingly consented to undertake its management," and, consequently, must decline becoming the medium of giving publicity to the "disinterested concealments" of "Alpha." We have not the honour of the acquaintance of "Sir George William Prevost, Bart., of Thickold's park, Herts," or of "William Calverley Curtis, Esq., L.L.D., of Montagu-street, Russell-square," or we should, perhaps, hesitate, ere we committed the ominous praises of those gentlemen to the flames.

"R. T." (York).—The paper was inserted in No. 508.

LECTURES ON CIVIL ENGINEERING.—The important course of lectures "On Civil Engineering, with Practical Illustrations," delivered by Professor Vignoles, at the University College, appear originally in our columns, from whence they are copied into the monthly publication entitled the *Civil Engineer*, and from that into the *Journal of the Franklin Institute*. We are, however, obliged to Mr. M. for his note, and shall feel thankful to him, as also to other correspondents, for directing our attention to information suitable for our columns.

The intemperate attack on the management of the Eastern Counties Railway, forwarded by "A Constant Reader," is declined.

"J. W." (Liverpool).—A full description of Mr. Andrew Knotz's Patent Fuel will be found in the *Journal* No. 202; see also Nos. 479 and 491, in which that gentleman's advertisement appeared. Any additional information can be readily obtained on applying to Mr. A. Knotz, Liverpool.

"S. S." Swansea.—We regret we are unable to comply with the wish of our correspondent. The paper unfortunately has been lost sight of, but we shall endeavour to obtain another copy, and, should we be successful, it shall appear in an early Number.

THE "YANKEE GREENHORN."—We have to acknowledge the receipt of a packet of letters from our esteemed correspondent, "J. F. C." New York, the contents of which we shall lay before our readers at the earliest possible opportunities. With respect to the powers of the "oil wonderful" experience, we may remark, that its very extraordinary performances, as recorded by us, have been confirmed by the responsible agent, who has ordered in this country, with the "very liberal instructions," and who will, we believe, be willing to answer any communications forwarded to our office.

"S. T." (York), had better apply to Messrs. J. C. Robertson and Co., at the *Mechanics' Magazine* office, Fleet-street.

Received:—"J. H." (Cwm Avon)—"J. S." (Bradford)—"J. T." (St. Leonard's)—"R. C." (Swansea)—"J. G. S." (Bath)—"A Subscriber" (Ambrosden)—"W. M." (Leith)—"Alpha" (York).

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, DECEMBER 31, 1842.

*** Parties desirous of ordering the *Mining Journal*, can do so, either direct to the office, or through any newsvender or bookseller in town or country. Notices of irregularity in its delivery are requested to be forwarded to the office, where every attention will be made to rectify the cause of complaint.

In closing the Volume for the year 1842, it is not only our duty, but a gratification, to acknowledge the valuable information derived from the communications of our numerous and able correspondents on the several subjects treated on in the MINING JOURNAL. The questions agitated in our columns during the past twelve months have excited more than ordinary interest, and at once establish the Journal as one of vast utility to the various interests to which it is directed, whether as regards mines, railways, joint-stock banks, or other public companies, while its original articles on geology, mineralogy, and metallurgy, with the papers read at the scientific bodies, add much to the value of its columns.

The question of the merits or demerits of the several patents of Mr. C. W. WILLIAMS for the combustion of gas, and Mr. SAMUEL HALL for the consumption of smoke, which have been discussed at considerable length in our columns, appears for the present to have merged into the "Bradford" discussion, which is now being carried on, Mr HALL having retired from the field of controversy, while Mr. BILLINGSLEY has buckled on his armour, and sent forth his knight (Mr. J. SMITH) to throw down the gauntlet, in defence of that gentleman's rights. It was our intention to have given the correspondence which has taken place, or at least so much as would place the question fairly before our readers, but we find it carried to so inconsiderate a length on the part of Mr. BILLINGSLEY, that we cannot afford space, except in our advertising columns, and which, with the view we entertain, we think would be but of little advantage to the (would-be) superseder of Mr. C. W. WILLIAMS.

If that we did not consider the mode adopted by Mr. BILLINGSLEY to be an infringement on the patent of Mr. WILLIAMS, we should hail with pleasure the patriotic feeling which that gentleman has displayed in giving to the world the result of his labours, without "fee or reward;" but, as we learn from the letter of Messrs. DIRCKS, inserted in our last Number, that the town of Bradford are, by their local Act, precluded from using any plan which has been patented (a most extraordinary clause, by-the-bye), and we must consider the object of Mr. BILLINGSLEY to be confined to the application of his *modus probandi* to the town of Bradford, whereby he and others may be relieved from any patent tax. Whether Mr. BILLINGSLEY's invention (?) however, be applied to Bradford alone, or be generally adopted, the question resolves itself into, whether the patent of Mr. C. W. WILLIAMS be perfect or not? whether Mr. BILLINGSLEY's mode be an infringement of such patent? or, if it be novel, or an improvement thereon? As we have nought to do with inventors, but to give publicity to their inventions, it is, as we have oft said, a matter of indifference to us who has the best of the argument, so that the community reap the advantage, while we are ever ready to give insertion to any communication from parties, who may imagine themselves to be unfairly assailed, or their inventions not properly represented.

We propose, in our next, to review the communication of Messrs. DIRCKS and the letters in the *Bradford Observer;* in the interim briefly offering some remarks on the case as it now stands, while it is only due to Mr. SMITH, whose favours we have received, to state that, in the extracts taken from NEWTON'S *Journal*, he (Mr. SMITH) has confined himself to such parts of the patent alone as "affects Mr. BILLINGSLEY's method," and as that gentleman's plan "is simply nothing more than an inlet of air *in front* of the furnace, regulated by a sliding trellis, or valve, and an outlet of the products of combustion, by means of his focal bridge at the farthest end of the furnaces, an immense proportion of Mr. WILLIAMS's patent has no bearing upon it whatever—indeed, there is no similarity." Such are the words of our correspondent, whose letter we do not insert, because we consider it to partake of a private character, but the quotation made is one which applies to the question under consideration, and which will be found (by anticipation) answered in Mr. WILLIAMS's letter, describing, in plain terms, the specification entered, and claim made under his patent.

We find, in the letter of Mr. WILLIAMS, that he states, "it *is* a matter of indifference *where*, or *how*, the air is admitted, provided it be by thin or small apertures, and in a divided state, for the purpose of *immediate and intimate diffusion* with the gases in the furnace." And, he further observes, that his patent "is not for this or that kind of furnace, or the introducing the air in this or that locality, or by round, or flat, or long apertures, or through plates, or pipes, or tiles, but for the *mode* of introducing it; and any means by which the object of that mode may be accomplished—namely, the bringing the air in a divided state to the gas; and the more minutely the better—the effect being their immediate *mechanical* diffusion and *chemical* union."

It further appears that Mr. WILLIAMS has secured, by his patent, the introduction of atmospheric air, at any part of the furnace, whether before or behind the bridge, at top, sides, or front of the furnace. We admit that the impression we had was, that of Mr. WILLIAMS's patent being only applicable beyond the bridge, but, as it appears that it is by no means confined to such application, we can only express our regret that we have given an opinion without possessing ourselves of full information, but which, in extenuation, we may observe, we had no means of acquiring.

The main question is as to the application of chemical means to effect the object, and the line is to be distinctly drawn between the application of air in diffuse or minute particles, ejected into the furnace coming into combination with the gas produced. The specification, indeed, states not only the quantity of air required, but the object of its introduction in a divided form, in terms which admit of no doubt—namely, for effecting such a degree of juxtaposition among the atoms of gas and air (that is, being '*intimately blended*'), that chemical attraction may become operative, and chemical combination, which is combustion, may be effected; and here we might close our observations by citing the "claim," which is in the following words:—"I specially claim, as my invention, the use, construction, and application of the perforated air distributors, by which the atmospheric air *is more immediately and intimately blended with the combustible gases generated in the furnace.*"

We shall next week enter into the patent of Mr. C. W. WILLIAMS, as also Mr. BILLINGSLEY's claims; but the space occupied by Mr. WILLIAMS's letters, as also that which would be required for the communications addressed by Mr. SMITH (with extracts from papers), preclude us from entering at length on the subject.

SMITH'S WIRE ROPE.—A flat rope, of the extraordinary dimensions of three feet in width by three-eighths of an inch in thickness, capable of raising upwards of 250 tons, is now manufacturing at the works of the patentee at Millwall. This is the strongest power of any rope manufactured on record which has come to our knowledge.

SMITH'S WIRE ROPE.—We are given to understand, that an action has been brought against Mr. Kanaford, a magistrate for the county of Middlesex (one of the referees of Mr. Mathews), who was lately in partnership with Mr. Andrew Smith, patentee of the wire rope, for damages incurred from misrepresentations made as relates to Mr. Mathews, and those contained from the conduct of that gentleman. We regret that legal expenses should thus be incurred in this matter, which is, indeed, but of a private nature—the merits of the wire rope, as far from being questioned, having been admitted on all sides.

ORIGINAL CORRESPONDENCE.

ON THE RELATIVE PROPERTIES OF IRON MADE BY THE USE OF COLD AND HOT AIR BLAST IN THE SMELTING-FURNACE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your observations attached to the letters of "A. B." and "An Ironmaster," in your Journal of the 19th ult., lead the public to expect something of great importance as forthcoming on this subject, and in your leading article of the 26th of November, you direct attention to some valuable experiments made by Messrs. Graham and Co., at the Milton Iron-Works, with hot and cold-blast iron, from which it appears, that the strength of the former, *in contradiction to the prevailing opinion, is greater than the latter*; the importance, however, which you more particularly attach to this series of experiments, is the refutation given to my statement as to the properties of iron so made; and as you doubt not that some explanation will be afforded, as to the results arrived at by myself and others, I at once proceed to render mine to the public, through the medium of your Journal. In the paragraph above referred to, you couple my name with Messrs. Graham and Co., otherwise I should not have given myself or you this trouble on the subject; for, on reading their letter, I do not find I am more particularly alluded to than all others holding the same opinions—we are a very numerous class, and daily on the increase. Messrs. Graham and Co., in their letter to you of the 14th ult., state, that on reference to an article in your paper on the 6th of August—I suppose in allusion to mine, which appeared on that date—they had caused a series of experiments to be carefully made *by themselves on their own iron*, for the purpose at once of refuting mis-statements—of enabling those interested in the trade to arrive at correct conclusions, that you should be undeceived; and, though not so expressed, no doubt intended, that, through your Journal, the public also shall be set right—all of which may, possibly, turn out to be much sooner said than done, in that way. My paper on this subject was regularly advertised to be read before the West Riding Geological and Polytechnic Society, on their meeting at Sheffield (nine miles from the Milton Iron Works), in April last; on which occasion, Mr. Graham did not think it worth his while to attend its discussion, although himself a member of the society, nor did he send his consulting manager to do so, notwithstanding the subject matter of the paper was well known to the iron trade of the neighbourhood. A clerk, however, attended on the occasion from the Milton Works, but the paper was not then read for want of time; and having heard that great boast was made, as to the ease with which my collection of facts were to have been annihilated had the discussion taken place, a very active opposition was expected to attend the reading at Wakefield (about fourteen miles from the Milton Works), in the July following, by which a further time of three months was given for adding strength to my opponents. That accumulation was, I suppose, more than counterbalanced by some overwhelming occurrence, which took place in the interim; *for*, on the 4th of July not one of my numerous opponents made their appearance. The paper then read appeared in your Journal of the 6th of August last, now near four months' ago, without an opposing observation having come to my knowledge, until, on my return home on Wednesday last, I found your Journal of the 26th ult., from which I collect, that the public has at length become so far alive to its own interest, as to have made its caution on this subject severely felt at many of the iron works, whose owners have been foolish enough to throw away the good name of their produce of pig-iron, for the paltry saving of some 12s. 6d. per ton in its cost, by which they have not only reduced its value in the market 25s. or 30s. per ton, as shown weekly by the prices current, but the system has had the effect of further reducing the value of good pig-iron lower by 30s. per ton, than the extreme badness of the times would otherwise have lowered it. I am aware there has been an attempt to show great gain to the public by this lowering of 60s. per ton, but those who have made it know but little of the iron trade, if they do not know that castings generally made from iron of such a quality, are, in reality, not worth so much by 80s. per ton, even in the very simple article of railway chairs, as found in practice on a large scale by men of great experience in such matters; and, indeed, the public has, as yet, had but a small portion of this lowering of 60s. per ton on pig-iron, many unprincipled tradesmen having sold both iron and castings of the worst quality for little less than the best prices. This system is, however, now having a severe check put to it, by which all parties will, at least, have a choice of being either supplied with something good at a moderate price, or, if preferred, at a low price, and of a still lower quality, by which one of the many great advantages to the public of Polytechnic and similar institutions, will be fully carried out.

The facts mentioned in my paper of March last, which you, Sir, are pleased to say *are refuted by Messrs. Graham's valuable experiments (made by themselves, on their own iron)*, are not mine, but the experiments of others, altogether independent of this question, and are as follows:—In Mr. Fairbairn's account of the experiments made by himself and Mr. Hodgkinson, are mentioned the following results, each bar being one inch square, and 4 ft. 6 in. long, between their supports:—

	Breaking wt.	Power to resist impact.
Oldberry cold-blast iron	453	262
Ditto hot-blast iron	543	349
Using the same coal, ironstone, and limestone:—		
Elsecar cold blast iron	446	292
Milton hot-blast iron	353	339
Working in the same mineral field, in North Wales:—		
Penkey cold-blast iron	387	229
Plaskynaston hot blast iron	370	317

In the further progress of Mr. Fairbairn's valuable experiments, it became important to know, if a weight having once impaired the elasticity of cast-iron, to what extent it could be loaded, without endangering its security? and, with this view, the following results were brought out:—

In the cold-blast iron, with a load of 200 lbs., the deflection increased in 103 days from					Inches. 1·025 to 1·033
Hot-blast	ditto	ditto	ditto	ditto	1·178 1·197
Cold-blast iron, with a load of 336 lbs., increased in 103 days from					1·344 1·366
Hot-blast	ditto	ditto	ditto	ditto	1·573 1·607
Cold-blast iron, with a load of 392 lbs., increased in 106 days from					1·666 1·949
Hot-blast	ditto	ditto	ditto	ditto	1·791 1·966

Cold-blast iron, with a load of 448 lbs., continued to increase in deflection, and ultimately broke, after sustaining the weight thirty-five days. *All the bars from hot-blast iron broke in the act of loading them with the above weight of 448 lbs. Mr. Fairbairn stated that all the irons were made of the same materials, and under the same circumstances; the irons were of fifty sorts.* In all the cases above-mentioned, the irons experimented upon were sent to Mr. Fairbairn for that purpose by their respective makers. The experiments I shall next call your attention to were made with great care by Mr. Todd, iron founder and engineer, of Leeds, they being intended for his own guidance in his profession, and *the irons all having been taken from parcels purchased by him in the regular way of business, without their makers knowing any such experiments were intended. This circumstance will, I know, with many, be duly appreciated, as regards the true value to the public:—*

	Breaking weight.
Brierley (Yorkshire), No. 3 pig iron, cold-blast, average	33 0 0
Elsecar (ditto) ditto ditto ditto	34 0
Low Moor (ditto) ditto ditto ditto	33 0
Summerlee (Scotch), ditto ditto ditto	17 0
Bevel (Staffordshire), ditto ditto ditto	15 0
Brierley and Elsecar mixed, average	33 0
Elsecar and Low Moor, ditto	30 0
Brierley, Elsecar, Low Moor, Summerlee, and Bevel mixed, av.	30 0

I may, I think, now pass to such experiments on wrought-iron, made from cold and hot-blast pig-iron, as have yet come under my notice, which will be found of a character not to be mistaken, and particularly when it is known, that the two first were made by two *different* manufacturers of the highest respectability for their own information, and the iron all sent by the makers, they all knowing it was intended to be experimented upon.

		Blows req. to break.
No. 1	Cold blast iron, bar, 24 inches at centre	6
	Scrap ditto ditto ditto	9
	Hot-blast ditto ditto ditto	1
	Area of section. Do. with 17 lb. hammer.	
No. 2	Low Moor cold blast	24
	Brierley ditto	16
	Milton hot-blast	2
	Do. with 20 lb. hammer.	
No. 3	Elsecar cold blast	21
	Milton hot blast	1½

Seeing the result of these experiments, can you *wonder at my having come to the conclusion of the total unfitness of such hot-blast iron for machinery purposes*, and do you think that any experiments made at the Milton Works, under any circumstances, will be likely to alter public opinion on this subject; and I cannot but be surprised at your expressing even a belief that any facts, so brought forward, should run the risk of being refuted by any such an attempt. It has now become my duty to add, that in the seven first experiments named, I have taken no further part than that of calling public attention to them; indeed, except Mr. Fairbairn's, I was ignorant of their being made until some time after they took place. As regards the last of the eight experiments, on the 3rd upon wrought iron, I may take leave to say, that my object having been throughout to contrast the difference of iron, made by the use of cold and hot air, in the smelting process of their manufacture, it was requisite that the irons experimented upon with that view, should, in all cases quoted, have been made *from the same materials*, as well as by cold and hot air respectively; and as No. 1 and 2 of that series were not all from *the same materials*, it was incumbent on me to have trials made for that purpose. I, therefore, ordered the workmen at Elsecar, to take promiscuous bars in stock, and also to procure, from a separate branch of the establishment, iron sent from the Milton Works, ordered of their best quality, *for* railway axles; and when it is considered, that in this latter case, unlike those in experiments Nos. 1 and 2, the iron was not made knowing it would be experimented upon, the comparative results are so strikingly similar, as to leave no doubt whatever of the correctness of all. In what I have before, and now stated, as *having been done by others* on this subject, I challenge any parties to prove them mis-stated; and, as regards my own opinion in this matter, formed from these and many other facts not mentioned, you are aware it is not one formed yesterday, but has been more and more confirmed by passing events since the year 1834, when I first saw numerous parcels of pig-iron made by this far-famed new process, sent into the market, broken, by loading and unloading, into pieces so short that the founders could not pile them in their yards; and although this evil is, in some measure, prevented by the pigs having been made much thicker, my opinion has not been altered by that; nor do I think it in any risk of being shaken, should all the hot-blast iron makers in the world experiment themselves on their own iron, so long as your Journal continues to show, as it did on the 12th of last month, that while cold-blast No. 1 iron in Wales was advancing from 3*l.* 15*s.* to 4*l.* per ton, hot-blast iron in the Clyde had lowered to 2*l.* 5*s.*, *and no buyers*. I am but too well aware of the demoralizing effect on the commercial world, of the repeated panics it has undergone since 1826, each succeeding one of longer duration than its predecessor; yet I was not prepared to hear it affirmed, by any portion of the iron trade, which even within my own recollection could justly boast of its high independence and integrity—I was not, I say, prepared to hear of any of its members coming forward, and attempt to show the public, that the iron-makers even of Scotland, had been benefited by the heated air system, of making iron at the very moment when Scotch iron has sunk 30*s.* per ton below that of South Wales, which, previous to the introduction of the improved system, was sold at similar prices.

I may now, I think, deny that any one of the facts mentioned in my paper, printed in your Journal of the 6th of August last, have yet been either refuted, or proved to have been misstated. With respect to my own opinion, formed from those and many other facts of a similar kind, it not only remains unshaken, but is still further confirmed, by the manner in which the experiments at the Milton Iron-Works have been got up, for it turns out, on inquiry, that Messrs. Graham and Co., *who are not cold-blast iron makers*, having had an accident with their heating apparatus, were obliged, for a short time, to make some cold blast iron, and, as all iron makers are but too well aware of, this sudden change in the working of their furnaces had the usual effect of producing a quantity of very bad cold-blast iron, some of which (I hope the best, against the worst of their hot-blast iron), it seems, has been experimented upon by Messrs. Graham and Co., for the purpose of overturning the results of all former experiments, *made upon at least five different parcels of their iron*, in common with a great number of other irons, and *experimented upon by as many different men, both for public and private information*—I doubt not such experiments will be duly appreciated.

Since writing the above, and in accordance with my letter to you of the 6th instant, I attended the West Riding Geological and Polytechnic Society's meeting, held at Bradford, on Wednesday last, for the purpose of hearing Mr. William Graham's statement of experiments made on iron manufactured by hot-blast at the Milton Iron-Works; finding, however, they were similar to those published in your Journal of the 26th ult., I should not have troubled you further on this occasion, had not the introduction to his experiments stated that in my paper, read before them on the 4th of July last, and published in your Journal of August the 6th, I had made some invidious allusions to the Milton iron, from which it appears the subject has at length become of so tender a nature, that mentioning any irons by name, even in common with a number of others experimented upon for the express purpose of ascertaining the difference between cold and hot-blast iron, is a transgression not to be forgotten; the paper in question is, however, itself a proof of my intentions not having been more invidious towards the Milton iron than any other of those irons named, *for*, on turning to the first experiment on wrought-iron, it will be found printed thus:—

	Blows required to break them.
Cold-blast iron	6
Scrap iron	9
Hot-blast iron	1

Whereas it might, in truth, have been put down as follows:—

Low Moor cold-blast	6
Kirkstall scrap	8
Milton hot-blast	1

I, *therefore*, hope to stand acquitted of any such accusation—at least, by all impartial readers. Trusting I shall not be called upon to trouble you again on this question, I may, in furtherance of settling this very important subject to the British iron trade, and the public in particular, give a short outline of what passed at the Bradford meeting. The paper, on being produced, presented in itself all the pomp and circumstance of a Chancery brief, but was accompanied by a note, saying that Mr. Graham's state of health prevented his being present to read it, and requested some one there would do so; on the chairman's making arrangements for that purpose, it turned out, in the absence of Mr. Graham, neither his consulting manager, manager, engineer, clerk, or even the smith, or striker, who had made the experiments, were present, but a joiner had been sent over from the Milton Works, with the paper and specimens in question, who, it appeared, had been appointed for that purpose, because, in addition to his being a very respectable man, he had the further requisite good property, in consequence of his constant and close employment in the pattern shop, of being unable to answer a single question relative to the paper he had brought. It having been, at length, read, the generally expressed opinion of the few who thought they could understand its intention, was, that under the circumstances, nothing whatever had been accomplished towards its professed object. Such being the case, what other object could the author have in view? *He, surely, could not intend the public to suppose that William Graham and Co. are cold-blast iron-makers*: or that, in the face of all the *independent experimentalists* I have named, it is quite impossible to spoil *the previous very good name of the produce of the Milton materials*, as formerly made with cold-blast, by treating them under the hot-blast system. With Mr. Graham's paper Two letters were sent, and read in testimony of the good quality of the Milton iron—one in consequence of *experiments made from iron lately sent for that purpose*, and the other from a person who had to do *with contracting* with Messrs. Graham and Co., *for their supplying a very great quantity of castings and other iron work at a very low price*; after which, the least he could do, under the circumstances, was, to say that such castings and iron were *of good quality*, or what would the original contractors have said? I must, for want of time, defer my answer to "Alpha," "Scotus," &c., for a future Journal.

HENRY HARTOP.

Barnborough Hall, Rotherham.

MR. HOPKINS'S THEORY OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I am rather disappointed with the last letter of *your correspondent*, "Geologicus," because, from the positive tenor of his remarks on Mr. Hopkins's theory, I did anticipate that his statements were founded on *hard fide facts*, and as my principal questions were so simple, and brought forward by "Geologicus" himself, as arguments, I could not for a moment have supposed that the replies required so much time to consider; however, his ideas, and the amount of his practical knowledge of the primary school, is now sufficiently evident to make him quite incompetent to enter into discussion respecting Mr. Hopkins's "Theory of Primary Lamination, their Verticality and Polar Direction." "Geologicus," "Veins of Nature," and "the Arctic Circle having been once under the Sun," &c., alluded to in a previous Number, are equally dark passages, and requires explanation.

S. R. F.

Southwark, Dec. 29.

ON THE FILLING OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your correspondent, "Cymro," must be aware that theory cannot consistently be put forward in the support of theory, and that generally received notions are not at all times the most correct. According to some (not the best) modern authorities, the heat of the earth continues to increase in depth, so that, at a certain distance, the interior will be a melting mass of lava; but it must be borne in mind, that not one of these blind leaders of the blind has yet advanced one single sound argument in support of his favourite opinion—*but*, on the other hand, there is gross and dishonest misrepresentation of natural phenomena in support of it: thus, for instance, the eruption of the Nicaragua volcano, called Jurago, is thus described at the time it took place:—"The Jurago was only a small hill previous to the year 1760, when in that year, on the 29th of September, it began to burn with furious explosions, ruining entirely the sugar-work and the neighbouring village of Guesana, and from that time continued to emit fire and burning rocks in such quantities, that the erupted matters, in *six years*, had formed themselves into high mountains, nearly six miles in circumference. During the time of the first eruption, the ashes were carried as far as the city of Quaretaro, 150 miles distant from the volcano; and at Valladolid, sixty miles distant, the shower was so abundant that the people were obliged to sweep their yards three or four times a day." In the very teeth of this and similar records, Baron Von Humboldt, eighty years after the occurrence took place, modestly tells the world that this mountain was, as Mr. Phillips expresses it, blown up like a bladder, appealing to the natives for their corroborative opinions. Again, he asserts that the Jurago is wholly composed of trachyte, whereas it is composed of many substances, as may well be conceived. This, "Cymro," is one of your *best authorities*, and may be placed alongside Baron Fourier's mathematical calculations of the cooling down of the earth, M. Elie de Beaumont's hypothesis of independent chains of mountains having been suddenly thrown up at distant periods, and numerous other geological dreams and suppositions which are now courting public notice. The appearance of the geysers on the top and back of courses of ore, gives the decided negative to Mr. Hopkins's theory, demonstrating that transposition—the result of *chemical* action—has taken place from the lower beds through the medium of veins, fissures, and permeable beds.

Wellington, Salop, Dec. 28. SCRUTATOR.

ON THE FORMATION OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In continuation of the promised sketches of the troubles met with in coal-fields, I now proceed to give that of "nips." These "faults" (unlike that of "slips") are not in any regular order, either as to their course, form, or size—sometimes found in the shape of a belt running from dip to rise, and in other places stretching along the level course, or bearing line, and in all shapes, oblong, round, and angular. The worst of these troubles is, that when met with, one can form no idea of their extent. Under is sketch of a "nip" thirty fathoms in length, as cut through in a coal level:—

In that part of the field which the above sketch represents, from *a* to *b* the coal was of the regular thickness and quality; from *b* to *c* is the "nip," where the overlying rock rests on the substratum, and shuts out the coal; from *c* to *d* is an enlargement of the bed of coal, which is soft, and inferior to the regular seam. I must, however, observe, that it does not follow, as a matter of course, that enlarged beds will, in all cases, be found on either side of a "nip." In other coal fields where these troubles have been met with, no such results have been found. As I do not pretend to be able to do more than to describe what I have seen and felt, I ought, perhaps, to conclude without offering any further observation, as I honestly confess it has given me more trouble finding out how the effects produced might be overcome, than examining into the cause of their being there; I shall, however, remark, that appearances would seem to favour the theory that coal had at one time been in a semi-fluid state, and that unequal compression, when in that state, made the "nips" referred to. It has been observed, that beds of coal decrease in thickness, according as they are followed down under great cover; and those very thin seams, which are found workable at shallow depths, it is questionable if they would be at all found, were they to be looked for at great depths. A WORKMAN.

Dec. 22

ON THE ORIGIN OF THE METALS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—M. Gmelin observes, that, in the northern parts of Asia, ores are almost always found upon, or near, the surface of the ground; and this remark, which is the result of extensive observation, equally applies to the greater portion of the vast continent of Africa, and most probably to many other portions of the globe. In the vast expanse of deserts situate in rainless regions, RAIN is the first, and very often the sole, metalline product; its general appearance is that of an oxide, and in this state it is interesting to observe the gradual generation of this metal in calcareous beds, and the several means by which Nature effects the ends proposed. Many of the elevated plateaux and hill ranges are wholly calcareous, being composed of particular species of lime secreting animals, or of the reliquæ of numerous species heterogeneously blended together, and identified as analogous with species now existing in the neighbouring seas. It is upon the surface of these beds that this metalline body first makes its appearance as an *oxide*, gradually disappearing as we approach the inner parts of the bed: thus, for instance, in a bed of pearl oysters the surface portion, to the depth of eighteen to twenty inches, is highly oxydated, and, as a natural consequence, the organic bodies are broken into pieces of indefinite shape and size; but beneath this the iron gradually disappears, and the organic body is seen, the same in appearance as when first abstracted from the waters. Here it is evident that the elements of the metal are in the organic body, and the metal is generated by the long continued and intense atmospheric action. Again, when these formations abound with salt, the generated metal assumes the form of *iron pimice*—and this also is very common as a surface ore, and confined to the surface. On the other hand, when sulphur and bituminous matters abound in the superficial beds, the metal generates in those beds where the waters, impregnated with these inflammable products, lie, and wherever they can percolate, there the metalline principle becomes deposited in the consequent decompositions and recombinations of bodies thus accidentally brought together, entering into and mineralising the fossil bodies of which the bed is composed, and calling forth the metalline principles existing within these bodies—sulphuric acid being the proximate cause of generation, and sulphuretted hydrogen being the chief cause of precipitation of the metal—the continued result being a sulphate, phosphate, carbonate, or arseniate. The elements of this metal also abound in the fat nutritious marls comprising many of the superficial beds, and where the metal is generated the whole bed passes into the state of ironstone. Again, yellow pyrites are often generated in the laminated granite variably blended with the crystalline mass; and at times the metal is generated in nests and siliceous aggregate, giving character to and producing particular species. In all these vast regions, embracing so large a portion of the earth's surface, we have every reason to believe that there is no mineral bed (apart from the mountain chains) that is sufficiently rich to work with profit, unless the surface is covered with vegetable earths, or water is abundant. In the hills of Abyssinia, (the surface soil of Eastern Arabia, and the elevated regions of the East Indies, the metals are always superficially disposed; and in India, more particularly, the richest iron ores are on the surface—the pick and crow-bar being the only mining implements necessary to produce a first-rate ore, and in quantities equal to the demand of the whole world. That this metal is generated, and still generating, admits not a shadow of doubt, for the act of generation is not only strikingly manifest

in those parts above enumerated, but also in the recent fossil formations abstracted from tropical seas—all the singular phenomena displayed by this and other metals in their combinations, and the changes of form they undergo, being occasioned by their attraction for oxygen, and the different proportion in which they contain this principle. Confining my observations, at present, to iron, I cannot but agree with Cesalpinus and other ancient writers, that the earth contains a metallique plastic principle in it, and which in time may be converted into a metal, or, as Dr. Jordan says, "there is a seminary spirit of all minerals in the bowels of the earth, which, meeting with convenient matter and adjutant causes, is not idle; but they do proceed to produce minerals, according to the nature of it, and the matter which it meets withall—which matter it works unto like a ferment, and by its motion produces an actual heat, as an instrument to further its work, which actual heat is increased by the fermentation of the matter." Put this in the modern language of science, and it will be found not only consonant to the known laws of Nature, but also a sufficient explanation for the increasing heat manifest as we enter the bowels of the earth. Henckel, in his *Pyritologia* (which I strongly recommend to the perusal of your theoretical correspondents), observes, that "iron is the first metal that may be, and proximately is made, from crude earth; its earth is the first form of all metallic earths, derived from the crude earth; whence, as iron is the ground work of pyrites, this last should seem not improbably to have its origin as high as the creation." It is, undoubtedly, contemporary in development with the earliest carboniferous products of the earth; it is also certain that pure iron does not exist in Nature; that in moist earth it is converted into an earth, losing all its metallicity—the ochreous result resembling, in character and appearance, the common yellow brown marl; that its bases are very often sedimentary depositions, or organic accretions; and in this country of contemporaneous origin with the coal and slate formations; that its disposition is regulated by chemical affinity, and the cohesive powers of other bodies; that its generation and transpositions are regulated by the acids of the earth in their sti'iform, vaporous, or aqueous state, which permeate the sedimentary beds and aggregates of which these beds are composed, the dip and inclination of the bed determining the dip and inclination of the metalline principle; or otherwise its generation is due to oxygenic action; that the metal being generated is one of the proximate causes of the increase of its quantities, in conformity to the opinions of Gundentius, Morals, Agricola, Baccius, and other ancient writers. The ancient chemical philosophers held that the matter of which the metals were generated are sulphur and mercury; Paracelsus and Basilius Valentinus added salt as a third principle: sulphur, phosphorous, and salt, or their respective elements, perform a most important part in this work of generation, uniting in varied proportions with the alkaline earths and oxygen. I shall resume this subject in an early Number of the Journal.

D'Oa.

Dec. 26.

ON THE FORMATION OF MINERAL DEPOSITS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As Mr. Fox has quitted the field with admitting that no coal is formed beneath the mountain limestone, the coalwakers must now come among us colliers, in the mineral deposits; we shall have the pleasure of seeing their operations, if they are inclined to form any coal in future.

"A Workman" thinks, if the depressed parts of the dislocations could be lifted up to the elevated parts, they would fit them to as great a nicety as any joint that was ever made. Now, Sir, I positively deny that; bare assertions will not do; but facts are stubborn things. I will admit that the same veins might be seen on each side of the dyke, and the same thickness perhaps, and the same quality too, but there is, as I said in my second paper on this subject, a difference always in comparing both sides of a dislocation; if it is done by a careful observer, which none but practical mineral men would be likely to see, a difference either in the mineral itself, even in the very texture, cleavage, and in the accompanying strata. I just beg leave to give one proof, among scores that have come under my notice. It shall be the two sides of the big upthrow that is here, and the one I have treated upon in former letters to your Journal. We are working the bottom, or Red Vein Mine, very extensively on both sides of the dislocation; there are two veins of ironstone in the working ground; on the upper, or the west side of the dislocation, those veins are 2 ft. 8in. apart—on the lower, or north side, the same veins are only 18 inches apart; thus, you see, there would be no fit, and I have another very great practical reason to know that it is no fit; the same mine, on the west side of the upthrow, costs to get it from 10d. to 1s. per ton more than it does on the east, by reason that there is fourteen inches more ground to turn over, and send out of the work, from the west side the dislocation, than there is from the east side, for the same quantity of mine. But there is still more ample proofs in the surrounding strata to satisfy the careful observing miner that they never joined together; but "A Workman" is in abler hands than mine—I shall leave him there.

Perhaps I shall be allowed to make a remark or two upon Mr. Hopkins's theory. Suppose a very large dislocation (but, however, there need be no supposition—they are facts) crossing a district for some miles, its bearing being north and south, should at length be intersected by another dislocation, still larger, whose bearing is east and west, the north and south fault being an upthrow to the west, the east and west one a downthrow to the south; at the angle of their intersection the east and west fault stops the north and south one, and is so far diminished in size itself, that, at a short distance to the west from the angle of intersection of those two great faults (for the smallest is an eighty-five yard step), the east and west one is only a few yards jump to the north. How do those great geological phenomena agree with Mr. Hopkins's theory?

Bitmeston, Dec. 26. THOMAS DRAKIN.

ON THE FORMATION OF MINERAL DEPOSITS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I observe a great deal about lodes and minerals in your late Journals; some of the observations have very forcibly reminded me of the words of my "Old Daddy." "Joe (says he) you will find some day or another that it will be proved that our ore grows out of the walls of the lodes to fill them." Your correspondent, signing himself "Mining Captain," appears to be of the same opinion. Our lodes in this district contain parallel bunches, all of which are in the same north and south line, and in the same lode of rock; and I have frequently seen the mundic growing out of the same kind of kindly rocks from the walls of our old workings on the south; I have also seen the lodes cut by heaves all to the north, which we call "right handed heaves" in our mine. We workmen, certainly, ought to know a little of the nature of the mines—the appearance of the bunches of ore—the throws and the gauges, and also the heaves; but I certainly did not think that Mr. Budge was so ignorant in these matters as he appears to be. I think, Mr. Editor, that he must be very fond of "hog's pudding," and have stuffed the barrel instead of the mine, otherwise he could not be such a conglomerated pastry. To complete his theory, it is only necessary to have all the trees full grown and the fruits ready made. I would recommend Mr. Budge to study the effects of the "pick and gad," and confine himself to his own station.

Redruth, Dec. 26. A TRUEVEIN.

MR. HOPKINS'S THEORY OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your correspondent, signing himself "A Mining Captain," leaves us in doubt whether to consider his extraordinary encomiums on Mr. Hopkins's theory as a *puff direct*, to usher the bustling among us miners, or as a preliminary step to some most important disclosures, to be given to the world through the medium of the Geological Society. Important disclosures they must be, indeed, to bear out a theory of this nature—to lay down laws where laws never did nor can exist, and which, without the aid of the divining rod, or the extraction of the poet, are to enable us infallibly to hit the right vein on the head. We ignorant Cornishmen fully appreciate the benefit conferred by those astounding discoveries, and will undoubtedly assiduously study his mechanism and geometry of mining, and, in order that we may lose no time, perhaps Mr. Hopkins, or his shadow, will favour us with a few details, accompanied with illustrations, more lucid than those already published in your Journal. It is said by a very learned writer, that all theories are good which in themselves produce good; such may be the case with the theory before us, but where large fortunes are hazarded in mining speculations, both miners and capitalists will pause ere they pursue it to supersede practical experience. Had there been one universal law to govern the segregation and disposition of mineral veins, the miners of the present or of past ages must have discovered them ere this; there are many rules applicable to, and sometimes invariable in, localities, but, beyond this limiting, the exceptions to those rules are very often still more numerous. Who, for instance, would think of finding dislocations in the coal beds of America analogous to those of Lancashire or Yorkshire, or of finding gold and silver mines in this country analogous to Peru or Mexico? yet Mr. Hopkins tells us that the like causes of generation and disposition of these beds were once existant in this country, previous to its travelling thus far north. If we admit the generation of metals, we must admit that locality has a marked and determined influence in their disposition and mechanical arrangement. It appears to me that there is a sensible difference between the simple cohesion of metalline bodies to the consolidated rock, and permeation of those metals through those consolidated beds, in order to form the continuous vein; the first act of Nature we readily comprehend, but the second is surrounded with impossibilities, both as regards the impermeable nature of many rocks, and the action of electricity. I must confess that I am in the dark on the subject, will your correspondent, "A Mining Captain," give some further elucidation of it?

CURIO.

St. Austell, Dec. 28.

MINERAL DEPOSITS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—There is no information so truly valuable to the practical miner as that which enables him to pursue, with greater economy and profit, the practical working of a mine, and to overcome those natural or accidental imperfections commonly accompanying mineral beds. Here theory is a mere pickpocket, and the practical miner is well aware that no general rule can be applied, other than those with which they are at present well acquainted: but, as the local phenomena of mines present features varying from each other, it is desirable that the same be placed on record, that the man of science may, upon the practical information thus given, be enabled to draw up certain rules and observations for the guidance of miners in all parts of the world, and to come to more accurate conclusions as to the causes of effects produced. Your correspondents, Messrs. Deakin, Budge, and Thompson, were not called upon to enlighten your readers on matters of which they appear to be profoundly ignorant, but to give the results of individual observation and experience in their respective departments, wholly unconnected with theory and theology. These practical miners must know, that, however deficient of local knowledge of mines men of science may be, they have still stores of information at their disposal—the collected material of ages, and of which the mere miner knows nothing; they must also know that pharasaical assumption can never prevail against scientific argument, and although knowledge, as well as ignorance, will sometimes lead men astray, yet scientific acquirements are not to be lightly treated or despised on that account. The letters of "A Workman" are to the purpose, and I trust that they will be followed out by him and other practical men in the same simple comprehensive way.

Oxford, Dec. 24. J. S. D.

ON THE ORIGIN OF COAL.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—It is generally admitted by modern geologists that the *coal seams are of vegetable origin*, but this admission, qualified by sundry speculations, is quite insufficient to warrant the conclusions drawn therefrom, or to account for the numerous local accumulations of bituminous matter spread throughout the superficial beds of the earth, as naptha, maltha, petroleum, mineral pitch, asphaltum, retinasphaltum, mineral tallow, mineral caoutchouc, jet, coal in its varieties, ambergris, steatite, and bituminous rocks, stones, and earths. The bituminous oils, shales, and rocks, of many parts of Europe, Asia, Africa, America, and Australia, are, in perhaps the majority of cases, disposed in formations where terrestrial earth and terrestrial vegetation is wholly unknown; thus, in the vast mountain range of Arabia, skirting the Red Sea, bitumen is exceedingly abundant, in strata wholly composed of organic animal matter, secreting in the larger fossil shells in the hollows of stones and rocks, in beds in the calcareous hills, and sometimes exuding from fissures and abrupt acclivities, caused by the intense heat of the climate. In the desert of Black Sands, in Persia, its presence gives colour to those sands, and in other deserts it is often the chief constituent of bituminous basalt, limestone, and other products, and it is from these bituminous beds that vast stores of sulphur are generated which abound throughout Africa, in the desert bordering the Euphrates; in regions where a blade of grass is never seen, it is found loosely disseminated, or forming vast deposits beneath the surface soil; in these and many other localities, such as Egypt, Syria, Persia, Turkey, Palestine, &c., it is unallied with the coal beds, being solely generated from animal matter, and many of the most ponderable rocks within tropical seas are the secretions of gigantic bulwa and other particular species. Again, in these localities, there is no uniform disposition of these substances, as we find in Europe and America, but all is wildness and irregularity, although on every side you behold vast beacons of dried up or departed seas: land, and through all, there are the elements of coal, but coal is not to be found, nor is there the impression of a terrestrial plant or fresh water shell. Here, then, in regions far more extensive than the coal beds, the carboniferous formations are wholly exempt from those laws laid down by those who advocate so strenuously the vegetable origin of coal. The coal beds of America, extending over vast regions Trans Alleghany, accord throughout with the phenomena of the coal beds of Great Britain and the phenomena of the places above-mentioned, and the abundance of animal matter bituminised as oil, naphtha, petroleum, &c., rivaling, at least, the quantity of matter actually converted into coal; for, in this continent the coal beds are many of them still in the act of transition, but their presence in this secondary state does not, as is stated by geologists, denote the presence of coal. The geology of those portions of America puts to the blush those who at present take the lead in this science. The whole country, as Mr. Roy (employed in extensive surveys of that portion of the American continent) observes—bounded on the west by the Rocky Mountains, from the table land of Mexico to the parallel of 47° latitude; on the north by the barrier separating the head waters of the lakes from those of the northern rivers, and extending to Cape Tourmente, below Quebec; and on the east by the hills stretching through the United States to the Gulf of Mexico; has the appearance of having once formed one vast inland sea, occupying 900,000 square miles. It is one series of sedimentary deposits, strikingly characteristic of their origin, without any of those dislocations which give birth to shallow theories of internal heat, and its concomitant machinery. The whole country around Newark, says Silliman, is one vast cemetery of oceanic animal species; and Dr. Loch observes, the rocks in the western state, below the coal formation, have evidently been deposited in a deep primitive ocean. The coal seams of this country are in numerous cases immediately below the argillaceous ironstone, which is principally composed of marine animals; it is true that, apparently, sometimes they almost wholly consist of freshwater deposits, but the presence of the latter in overlying beds is no proof of those beds of coal having been formed by freshwater deposits, for, on due examination, we find a periodical succession of fresh and saltwater depositions; but, in either case, the bituminous matter has evidently been abstracted from the overlying beds, as well as, in other instances, from the underlying beds. The resolution of carbonised vegetables is inflammable and combustible—the resolution of animal matter is of like qualities, being also the proximate cause of the production of sulphur. Again, the aqueous volumes of a larger, and more particularly a tropical, river, held in suspension, not only vast quantities of vegetable matter, but, perhaps, equal quantities of animal matter, generated in the waters, or abstracted with the vegetable matter from the earth which the floods encompass. Let us compare past operations to those at present going on in climates analogous to those in which the coal of Britain was produced; the bed of the Indian Ocean, if divested of its waters, will be found of very irregular surface, having chains of hills, and banks, and other extraneous intersecting it throughout; it is the general repository of myriads upon myriads of animal species, marine worms, mollusca, madrepore, testaceous animals, lithophytes, fishes, and their exuviæ, to such abundance that, previous to the monsoons setting in, they almost cause the waters to become stagnant. Again, vast fields are covered over with fucus natans, and of other sea plants, and the spoil of all is eminently decreasing in and during the action of life, and in decomposition, or change in death, flowing east in the plains and troughs, bounding with the calcareous coverings of animals their carbonaceous and oily qualities; the continual absorption of the atmosphere also occasions continued and vast precipitations, as metals and other compounds—on the other hand, those magnificent rivers, the Ganges and the Burhampooter, uniting in their volumes, pour into the ocean vast volumes of water, holding in suspension vast quantities of silt and saline matters, abstracted in nearly equal quantities from the terrestrial, animal, and vegetable kingdoms. In the dry season of the year those depositions are, comparatively speaking, insignificant, and cover a very circumscribed area; but, during the periodical floods, those rivers are, in reality, oceans of rolling mud, constituting nearly one-fourth of their volume of animal and vegetable matters, abstracted from the surface soil of the vast delta, of living animals and vegetables, of finely-comminuted sands (not the debris of rocks), and of unctuous clays; in these torrents of mud myriads of flavitile and oceanic species are overwhelmed and buried in the accumulating heaps, which sometimes form, in a single flood, islands fifty or sixty miles in circumference, and eighty feet above low-water mark; thus, this delta abstracts annually largely from the ocean. The sands are deposited near the mouth of the river, but the lighter particles and floating bodies are conveyed out to sea, and eventually spread over an area of 1400 or 1500 square miles, being deposited in those parts of the waters free from disturbance in a line with the tides, and on valleys and plains of the deep. Most of vegetable species undergo complete decomposition, and the larger trees of the forests, and species which resist decay, eventually sink in masses, forming large beds, which a succeeding flood covers over for ever. The like depositions periodically form over the area traversed by the African and American rivers, millions of alligators, turtles, and other river species, together with vast shoals of fish, being thus consigned to the one common grave. In these, the most stupendous monuments of change, we trace the origin of many of the vast bituminous beds of Great Britain, America, and other countries; Time, the arbiter of change, separates the carbon of the one and the other, blending them together under their various consistencies and combinations, percolating through the consolidating beds, and occasionally uniting therewith, and eventually assuming, with the addition of hydrogen and peculiar salts, the crystalline state of coal, but not always crystalline, for, united with the earths, it very soon becomes a mere consolidated body—wild coal, or *shale*, in which the organic origin of matrix, impregnated with bituminous matter, is still to be traced. It is, therefore, only the bituminous portions of animal and vegetable species that become eventually converted into coal, although, in some instances, the organic bodies themselves contribute to form the matrix; the vegetable bodies, or decomposed bodies, become generally the recipients of the fluid matter, and thus it is we observe numerous seams disposed parallel to each other, and alternating with shale of like qualities. And, again, the coal strings and veins, so abundant in the sand strata of Scotland, are produced by the fluid percolating towards the lower beds; the beds, or heaps, of vegetable matter, in decomposition, are also recipients of animal oils and bitumens, which enrich their qualities as coal, and the roof of the seam is sometimes literally composed of pecten, ammonites, scales of fishes, and other animals and portions of animals. Professor Phillips observing, in many instances, the periodical alternations above noticed, having an entire parallelism of strata, speculates on the blocking up of estuaries, depositions in freshwater lakes, and the ocean waters periodically inundating the valleys of the earth. The bed of the ocean consists of mountain, hill, and valley, in like manner with the earth, and the sedimentary deposits generally find their way to the lower beds, never capping the elevations; and, again, this parallelism may be occasioned by the disposition of tidal currents. Coal may sometimes have resulted from vegetable decomposition produced by sudden eruptions of the sea, and this way account for the origin of some of the coal-beds in France; but all our, and the great American, coal-fields are evidently formed within the depths of the ocean, by a regular sequence of events, the extent of some of the overlying shales evidencing the action of immense rivers over a continuous continent, depositing in one flood vast accumulations of silt many hundred feet in thickness; such rivers do not belong to islands, nor is the absence of other vegetable species besides palms, ferns, reeds, and grasses, any proof that in this distant epoch vegetation was thus limited, for the action of water causes utter decomposition to many species, and, besides, in other strata we find innumerable evidence of a more extensive flora; there is no doubt that the largest portion of the then existing species are *incognita*. Again, the marls contain freshwater shells, but the lime-secreting animals belonging to the ocean have in decomposition wholly disappeared, their comminated particles forming the marl. Coal is not formed in or beneath freshwater lakes—the salts and acids of the ocean are absolutely necessary to produce this ultimate effect: thus, where the coal is now forming, the over or underlying earth is strongly impregnated with these necessary bodies. I here differ from M. Brongniart, who supposes they are produced by deposition in freshwater lakes. Coal seams, beds, and heaps, are always arranged in conformity to the bed on which they are deposited. The great, although unacknowledged, truth, that the ocean waters are gradually disappearing from off the surface of the whole earth, the elementary constituents entering into and becoming consolidated bodies, is quite sufficient to account for the numerous catastrophes which have taken place, the self-evident changes in the position of the earth's axis, the presence of tropical products in these latitudes, and even in the latitude of Melville's Island, without having recourse to ridiculous theories of sudden risings and sinkings of continents, of distillation of wood by means of a central fire, and other notions, more worthy the age in which Galileo lived than in this era of discovery and social improvement.

GEOLOGICUS.

Dec. 14.

THE RAILWAY SYSTEM—A FEW MEMORANDA.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—A small matter mentioned in the pamphlet, entitled *The Hydraulic Railway*, at the beginning of page 89, might, possibly, be rendered serviceable in the present railway system—it consists of a new arrangement for a railway whistle. After some of the late bad accidents, there was a good deal of discussion about providing effective alarm and signal apparatus, and those things have since been the subjects of several patents. To work out the rough sketch of the idea mentioned in the pamphlet, there should be an arrangement for sounding the whistle when the train was at rest (before starting), or when moving very slowly. This would be easily effected by adding a treddle, which might be made so as to be loosed off when there was sufficient speed on the train, or, perhaps, it would be better to adopt the strap, and loose and fixed pulleys for the treddle, much on the plan proposed in the pamphlet, for acting immediately upon the bellows itself. I hardly need say, that the bellows should have a sufficiently large safety valve or vent-port (under a proper pressure) to allow the air to escape whenever the bellows might happen to be kept going, and the whistles not sounding; in this respect it would be similar to an organ bellows. If it were made to sound the whistles shrilly (at, say, ten miles an hour), they might then run the engine at, say, fifty miles an hour, or any other speed, without any inconvenience to the apparatus. The only difference to it would be that the whole of the extra supply of air or wind, above what was required when the whistles were sounding, would escape through the vent-port in the bellows, or, if it produced a little extra shrillness at an extra speed, the apparatus probably would be none the worse as a warner. To be worked also by a treddle, this apparatus might be found useful at stations, signal posts, &c. It would be equally useful by day and night, in clear weather and in fogs. It should be powerful for this purpose, and then nothing could drown its note within a moderate distance, but such a hurricane as would blow the carriages off the rails.

I was once present at a station when an accident, though not a serious one, occurred in the night. It was occasioned by an engine coming up when not expected, and while an empty truck was remaining on the same line of rails. The men at the station, who had not noticed her whistle, when they at last perceived her near at hand, cried out they had no red light, and could not convey a signal. Now, would it not be well if it were made an instruction to railway servants to whirl round (vertically) their hand lanterns (white lights) when they desired to convey an alarm signal by night to an approaching engine, whenever, from accident or neglect, they had not a red light immediately at hand? the same would apply at the crossings, signal posts, &c. Might not also a white or coloured hand light—green or orange, for instance—to intimate an "engine light," be a proper thing for every engine to have "on board" in the night, for signals of the same character, whenever requisite? By the way, a variety of signals might be made with a hand light; it could be whirled round vertically, or moved in a right line up and down, or right and left, &c., each movement having a distinct meaning; also, it might have moveable or sliding glasses of different colours, for different occasions.

We have heard a great deal lately, and with how much reason, about axles breaking. In some cases this is supposed to take place from the iron, though tough at first, assuming, in process of time, a crystalline structure, and it is imagined that this structure is the effect of magnetic or electric action. Now, if a play of electric action has established itself in the axle surely it might be detected before it had seriously affected the tenacity of the iron, by occasionally drawing a sufficiently sensitive needle along the axle, or rather near, the axis in question; and when any unsteadily affected needle, Mr. Nasmyth's idea, as mentioned by him to the meeting of the British Association this year, might be tried. He to be

ually of opinion that the fibre of the iron might be recovered by annealing—at least, this is what he recommends when an axle has acquired a crystalline structure in making. Supposing this all practicable, would it not be well to recommend that every railway company should have an annealing oven or furnace? Even if crystallisation could not be detected, periodical annealing might be an excellent precautionary measure, if tried and found effective. The journals might be much protected if clasped, during the process, in iron belts or bracelets, to be screwed together, and so fixed on the journals in two parts. They would protect the journals from oxidation, and, I fancy, not impede the annealing, or else the metal in the middle of an axletree could be annealed. If the journals should, however, require anything doing to them afterwards, it would be merely a slight polishing in the turning lathe; their brasses, in that case also, would require a corresponding small alteration.

Bath, Dec. 24. J. G. S.

MR. GOODLET'S THEORY OF APPLYING STEAM TO AN ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—It has turned out just as I at first anticipated. Mr. Goodlet informs us that he is no engineer; and, as if apprehensive that those who may have read his letters would not credit this mere assertion to his prejudice, he is determined to confirm it by another letter upon the subject of condensation. Mr. Goodlet is an evaporator, and, unfortunately, he has mixed up his evaporation with condensation in such a way, as to have completely mystified the whole subject that he intended to advocate; and, in his great admiration of his own particular views upon the conversion of water into steam, he has found it necessary to condemn the greatest improvements that ever was made in the construction of the steam-engine, for the purpose of making his own theories more perfect. Mr. Goodlet says, that according to my view of the case, "a condensing engine, worked with 1 lb. effective pressure on the piston, would produce nearly two-thirds of the power that the same engine would yield, with an effective pressure on the piston of 10 lbs., although in the latter case there would be ten times more steam used!!" It really does appear very strange that he should make such an observation, and then endeavour to prove it by his statement in figures, which so decidedly contradicts him. Truly, this does fully confirm him in stating that he is not an engineer. What he calls 1 lb. effective pressure is, in fact, 15 lbs. effective pressure, and his 10 lbs. is a pressure of 24 lbs., which he has proved by his own figures, and the effect produced would be as 15 lbs. to 24 lbs.; and not by using ten times more steam, but a quantity in the same proportion. If steam, indicating 1 lb. per square inch by the safety valve, were employed in a non-condensing, or, as it is oftener called, a puffer engine, it would only perform one-tenth part of the duty, that steam, indicating 10 lbs. by the same means, would perform; and it is thus that the condensing engine would have the advantage over the non-condensing engine. There would be, as I observed in my last letter, nearly 14 lbs. effective power per square inch, obtained by the former over the latter, by the mere application of the condenser, which he so much condemns, and without making any addition to the power of the steam. This Mr. Goodlet calls *my theory*, whilst those who know anything of the steam-engine, will give it the title of *a practical* result—a result as generally known to engineers, as that steam is used in putting the machine in motion. Mr. Goodlet repeats his former proposition of not carrying his condensation, below 212° of temperature, and he informs us, that the power of an engine worked with steam at 240° of temperature, will be equal to the difference between 212° and 240°. Exactly so, just as the power of a non-condensing engine would be the difference between 212° and 240°, the former being equal to the pressure of the atmosphere; and his mode of working would be to reduce a condensing engine, with all its condensing apparatus, to a level with a mere non-condensing engine, which latter would be equally efficient and powerful, and much less expensive in its construction, and, therefore, far preferable to a condensing engine worked upon his principle. I can easily believe that I am the first person Mr. Goodlet ever heard say, "that high-pressure steam is more economical than low-pressure steam;" but it must not be inferred from this, that no other person ever did say so. He says that he has no practical knowledge of the working of Cornish engines, which he need not have told us; for, if he would pay a visit to that county, so famed for the employment of steam-engines, he would find not only pumping-engines in use, but precisely the same kind of engines employed in drawing and stamping the ores, as are used in "corn and other mills;" and he would find them worked by the use of high-pressure steam, and would be enabled to obtain such information as would prove, beyond a doubt, that high-pressure steam possesses great advantages over low-pressure steam, both in point of economy and efficiency, the result of practical daily experience. "Facts are very stubborn things." I advise Mr. Goodlet to appeal to them.

London, Dec. 23. ANTI-PUFFER.

ON C. W. WILLIAMS'S PATENT FOR THE COMBUSTION OF GAS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Observing, by your late editorial remarks, that it was desirable to have the means of distinguishing between my mode of consuming *gas* in furnaces, and Mr. Hall's of "consuming *smoke*," as he terms it, I here propose describing my own principle and practice, by reference to the only document which, in a case of this kind, can be taken as evidence—namely, the enrolled specification. If Mr. Hall, and other patentees, will do the same with respect to their patents, the public will have no difficulty on the subject of comparison or infringements. In my letter, in the *Mining Journal* of the 1st of October, I stated the circumstances which had led to the successful introduction of the very large body of atmospheric air, required for the combustion of the gaseous matter of coal in furnaces. I stated that in my attempt to imitate in the furnace, what was done in the Argand gas burner, I obtained success by merely *reversing* the process; that is, "instead of bringing the furnace gases in jets to the air, I brought the air in jets to the gas." Here, not only the object is sought to be accomplished, but the mode of effecting it clearly indicated; and this it is which has been made the subject of the patent. The preamble of the enrolled specification, states, distinctly, the object of the patent to be, "to cause a thorough admixture of the atmospheric air with the gas;" and as it is inflammable gas, and not smoke (as is generally and loosely stated by Mr. Hall and others), that is evolved from the fuel in the furnace, our attention should be mainly directed to the producing this. "*thorough admixture with atmospheric air.*" Such being the *true* gas now in effecting combustion, and preventing all, or any of those gases, from passing away, either wholly unconsumed, or in the form of true smoke. It is manifest, indeed, that no atoms of air and gas can be chemically united in combustion, until they have first been mechanically brought into contact, or, at least, within the range or sphere of their respective attractions. The specification also states, that this operation is intended "for the same purpose as air is admitted into the centre of the body of gas, issuing from an Argand gas burner;" and hence, a furnace so supplied with air, has obtained the name of the "*Argand Furnace*"—a sufficiently correct and accurate title, and one which cannot be misunderstood or misapplied. The specification proceeds to show how this, "*thorough admixture,*" may be practically effected—namely, by "introducing the air by means of small jets, issuing from numerous apertures." The value of this mechanical contrivance is further illustrated by stating, that "where the required quantity of air is introduced in a body, through large pipes or orifices, the gas and the air, *requiring time for* mixing, or effecting the necessary contiguity of their parts, have been found not to be adequately incorporated, until they had passed beyond the igniting temperature of the furnace." And, again, "before the mixture had passed into the flues, beyond the influence of the high temperature, essential to ignition." With respect to the *quantity of air required*, and to show that it was very large, the specification puts this beyond doubt—viz.:

The carbureted hydrogen gases require, as the condition of their complete combustion, 1st, that they be *intimately blended* with an appropriate volume of atmospheric air, which volume varies with the nature of the combustible gas; and 2d, thereafter having been so mixed with the air, the mixture be then heated to its temperature of accession, or be brought in contact with flame. Again, as one cubic foot of carbureted hydrogen gas requires two cubic feet of oxygen, or about two cubic feet of atmospheric air, while one cubic foot of bicarbureted hydrogen (or olefiant gas) requires three cubic feet of oxygen, or fifteen of air, to effect complete combustion—those proportional volumes of air must be supplied, and so intimately blended, as to bring the combustible gases and atmospheric air within the sphere of their reciprocal chemical attraction.

Here the specification states not only the quantity of air required, but the object of its introduction in a divided form, in terms which admit of no doubt—namely, for effecting such a degree of juxta-position among the atoms of gas and air (that is, being "*intimately blended*"), that chemical attraction may become operative, and chemical combination, which is combustion, be effected. With respect to controlling the quantity of air so admitted, nothing is required, practically, beyond what the specification describes—namely, that "the admission of air may be regulated by sliders, so as more air should be admitted than will be found sufficient to consume the combustible gaseous and fuliginous matters, and prevent the deposition of the carbon, and formation of smoke, in the flues." There is here no claim for any mode, or mechanical contrivance, for adjusting or varying the admission of air. Several ingenious patents have been taken out for such; on their respective merits, however, I offer no opinion. The specification, in conclusion, sums up in that which is called "*the claim,*" and which is usually referred to as being the most explicit enunciation of the patentees' rights, by stating, that "I specially claim, as my invention, the use, construction, and application of the perforated air distributors, by which the atmospheric air is *more immediately and intimately blended with the combustible gases generated in the furnace.*" Here I might rest my claim, as this description is sufficiently comprehensive and defined to satisfy the legal right. As to the situation, number, shape, size, or other modification of the apparatus for dividing the body of air; and the use of plates, pipes, tiles, or other materials and contrivances, for effecting this required division, these are matters of detail, and almost of indifference. Any plan, arrangement, or situation, by which the air is made to enter in a divided state (that being the essence of the whole), is embraced in the foregoing terms of the specification. Indeed, there can be no limit to the variety of furnaces and circumstances to which the principle and mode of carrying it out is applicable. To prevent cavil on these details, however, the specification contains the usual saving clause as follows—viz.: "As I do not confine myself to the particular *number, dimensions,* or *situation* of the several parts here described, they may be varied to suit the constructions of the furnaces and boilers, and the circumstances under which they may be placed, and which may be effected by any competent persons—these, my inventions, being applicable and intended to apply to all descriptions of furnaces, stoves, or boilers, where coal is consumed." In the specification, I have described "one mode of applying my invention to land boilers," and selected one which was best adapted for displaying the peculiar effect produced when the air enters in thin films, or in a divided manner. In this example, the air distributors are placed in a conspicuous position, and one most favourable for ocular inspection. The effect of dividing the air, on its approaching the gas, is there so palpable as to carry conviction to all who see it. In fact, without this visible mode of exhibiting the effect, I foresaw I should be discredited, the chemical action and effect denied, and the whole classed among the numerous "smoke burning" expedients, where patentees *allege* that "smoke is burned," and other effects produced, but which they can neither prove, visibly or chemically, and where, in truth, the gas is not consumed, but merely rendered invisible. That the principle involved in this specification, of introducing the air to the combustible gases in a furnace, has not been vaguely stated, is manifest from the fact, that none of the chemical or practical men who have been consulted, have expressed any doubt on the subject. On this head, Dr. Ure's statements are conclusive, and are the more so as the specification was revised by that experienced chemist. The specification embraces other useful objects incidental to furnaces, which need not here be referred to, as they do not touch on the main features of the invention. These main features may, then, be thus recapitulated:—1. The introduction of the necessary quantity of atmospheric air, to the gases generated from the coal. 2. The incorporating or mixing this air with the gases, before it be too late—that is, before they are cooled down by passing into the flues, below the required temperature. 3. The effecting this incorporation, or mechanical mixing, by any of the ordinary contrivances, which will cause the air to enter in a divided form—that is, in thin or small streams, jets, films, or portions; the object being, to present enlarged surfaces for mutual contact, and, consequently, enlarged surfaces for chemical action between the air and the gas. The mechanical effect produced by dividing the air, on its admission to the furnace containing combustible gas, is well and familiarly described by Dr. Brett. This enlarged action, he observes, is brought about "in the same way as the surface of any given volume of water is increased, by causing it to pass in thin streams, through a vessel containing numerous apertures;" as, for instance, the rose of a watering pot—the result there being, enlarged surfaces for mutual contact between the water and the air. A column of words cannot more satisfactorily convey the object, and means of accomplishing it; and, in this enlarged contact and sudden surface actions, depends the whole mechanical and chemical effect, when air is introduced to a furnace. I may now say a word as to the application of what has been thus described. On this head, the experience of every practical man must satisfy him, that as the forms, characters, and objects of furnaces differ, so must the situation and adaptation of the means of admitting and dividing the air be also varied, and it is not for a patentee to describe all the possible modes or situations of application or adaptation. Again, as it is found, by experience, that even the peculiar character of different kinds of fuel, vary in the quantities and character of their gaseous formations, so will they vary as to the length of time required, or difficulty in effecting, the requisite mixing or diffusion of the gas with the air. Were it convenient, perhaps the most effective mode of introducing the air, and applying the principle, would be, by extending the range of apertures along the entire roof and sides of furnaces, and even along the flues. In ordinary boilers, however, this would interfere with the situation of the water. In such, therefore, we are necessarily limited to the two ends of the furnace, and to these have I hitherto recommended the admission of air, to be confined in steam boilers. In the case of reverberatory furnaces, or those for heating large plates, a greater range is available. In these I recommend the placing the orifices, or apertures, along the roof and sides, as well as at both ends; the relative quantities of air to be admitted at each locality, to produce the best effect, can only be ascertained and adjusted by practice. As stated in my former letter, the object and practical application of this patent is as well defined and distinguishable from others, as the Argand gas burner, with its numerous apertures would be from that with a single large jet. The only difference to be reconciled, in comparing the Argand lamp and the Argand furnace, being, that their respective actions have to be *reversed,* since it is the air which issues in a divided state, and by suitable apertures to the body of the gas, in the latter, while in the former it is the gas which issues in a divided form to the air. The object to be effected, however, being identical in both—namely, obtaining enlarged surface or atomic contact and diffusion, to as great an extent and as rapidly as possible. On this head, I need only repeat the observation of Professor Brande, when he says, the effect is exactly the same, "only in your furnace you *invert* this ordinary state of things, and use a jet of air thrown into an atmosphere of inflammable gas." I have already trespassed too much, or I would comment on the infringements that have been attempted, under colour of using *hot* instead of *cold* air. On a future occasion, I will take the liberty of commenting on this.

C. W. WILLIAMS.

Liverpool, Dec. 22.

The following letter was received after the foregoing was in type:—

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Since my communication respecting my patent, I observe that some correspondence has been carried on with Mr. Billingsley on this subject. As I have not seen this correspondence, and am yet unacquainted with the facts (not having interfered with Messrs. Dircks and Co.'s practice), I can offer no opinion. I gather the fact, however, that Mr. Billingsley would seek to confine me to the application of my patent to one class of boilers. That gentleman must surely have very little knowledge of patent law or practice, or the nature and objects of specifications. As to my own, I need only repeat the remarks made by me, as given in the last Journal, in the report of the discussion on this very subject, at the Polytechnic Institution in Liverpool. I there stated, and repeat, that it is "a matter of indifference *where, or how,* the air is admitted, provided it be by thin or small apertures, and in a divided state, for the purpose of *immediate* and *intimate diffusion* with the gases in the furnace."

Mr. Billingsley mistakes, evidently, the nature and object of this patent, or the effects to be produced by it. It is not for this or that kind of furnace, or the introducing the air in this or that locality, or by round, or flat, or long apertures, or through plates, or pipes, or tiles, but for the mode of introducing it; and any means by which the object of that mode may be accomplished—namely, the bringing the air in a divided state to the gas; and the more minutely the better—the effect being their immediate mechanical diffusion and chemical union. What will Mr. Billingsley say to the adoption of this principle where there is no flame bed, and no space behind the bridge, or any place to introduce the air, except at the top, sides, and front of a furnace? Again, as to its adaptation to the hot and cold blast in the manufacture of iron, and to which I propose shortly directing your attention—extended that it will solve many of the now disputed questions respecting the alleged injurious consequences of the hot blast, and the delay and increased consumption of fuel in the cold blast. Mr. Billingsley may rest assured there are few cases in which fuel, either coal or coke, is consumed, to which the principle of the divided issue of air to the gas is not applicable, and with the same useful effect which attends the divided issue of gas to the air in the Argand burner. If Mr. Billingsley wishes to pay a compliment to his township, I am willing (for a very moderate consideration) to grant a free use of it for his district, and which he will find to be a more straight-forward mode of proceeding, than by any effort to deprive me of either profit or honour, which latter I esteem higher than the former, seeing how they have been so liberally bestowed on me by so many of the first chemical and practical men of the age, for this, simple as it may be, yet not less useful, application of a sound chemical principle to ordinary practice. In this way Mr. Billingsley may be liberal to his fellow townsmen and commissioners, without being so at *the expense of another.*

C. W. WILLIAMS.

Liverpool, Dec. 26.

SMOKE PREVENTION.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I quite agree with your correspondent, "A Manufacturer," whose letter was inserted in the *Mining Journal* of the 10th inst., as to the great importance to the public, of the investigation of the respective merits of the patented methods of Mr. Charles Wye Williams and Mr. Samuel Hall, for the consumption of the smoke and inflammable gases arising from coal. A matter of more vital importance, indeed, cannot be to this large manufacturing town, in common with all others. I think, also, that the claims of the other two gentlemen, mentioned by "A Manufacturer"—viz., Mr. Joseph Williams and Mr. Andrew Kurtz—should, at the same time, be examined. I have taken quite as much pains, I have no doubt, as even "A Manufacturer," to inform myself upon the subject in question; and I now, therefore, beg to state to you, that after considerable research, it appears to me, that the subject in dispute between Mr. Williams and Mr. Hall, resolves itself into *four* points—viz., 1st, the use of cold air; 2d, that of heated air; 3d, the introduction of air, whether cold or heated, at or beyond the bridges of furnaces; and 4th, the introducing such air immediately into the furnaces, and among the fuel. The introduction of air, at or beyond the bridges of furnaces, I find to have been practised very many years ago by Messrs. Parkes, Wakefield, &c. Hence, Mr. C. W. Williams, in his specification, disclaims that plan in the following words:—"I do not claim the introduction of air to the bridge, which has already been done by others." Now, Messrs. Parkes, Wakefield, &c., admitted the air in that locality in thin sheets, it being passed through narrow slits in the bridge. The patent of Mr. C. W. Williams is for precisely the same thing, varying merely the division of the air, on its introduction beyond the bridge, by passing it through small holes instead of narrow slits. This he claims in the following words:—"I specially and exclusively claim, as my invention, 1st, the use, construction, and application, of the perforated air distributors, by which the atmospheric air is more immediately and intimately blended with the combustible gases generated in the furnace." Now, in this consists the whole of Mr. C. W. Williams's invention, and claims to patent right. It must, therefore, be obvious to every one, that the simple question is this—do the modes of introducing air at the bridges of furnaces, by narrow slits and by small holes, effect the same thing? If the affirmative be the case, then, certainly, Mr. C. W. Williams's patent is of no earthly value, and that such is the case, I now assert without fear of contradiction, for I have made myself fully acquainted with the comparative effects of both plans. Mr. Joseph Williams, by his apparatus, on board her Majesty's steam vessels, the *Urgent* and *Merlin*, sends in the air beyond the bridges of the furnaces, through slits, and not through small holes, or, what can be construed into Mr. C. W. Williams's distributors. How, then, can Mr. Joseph be, by possibility, committing a piracy upon Mr. Charles Wye Williams, as stated by "A Manufacturer" for the invention of the latter, I repeat, consists solely in using round holes, instead of long holes or slits, and to this complexion his patent must come at last. Now, it appears to me, that the most important matters of inquiry for the public benefit are these—What are the reasons why the plans of Messrs. Parkes, Wakefields, &c., which were so numerously applied some years ago, of sending in air, at or beyond the bridges of furnaces, are now so generally abandoned? and why on many of the apparatuses of Mr. C. W. Williams, have already suffered the same fate? for, that such is the case, I presume that gentleman will not deny. Some of the above-mentioned reasons I will now endeavour to supply, not theoretically or from imagination, but from positive information and facts. In the first place, the air, introduced beyond the furnace, so far supplies the demand of the chimney, that the draft through the fire bars is rendered so feeble, that it will not produce sufficient combustion to work the usual boiler up to any thing like its required power; so that, probably, a thirty-horse boiler may not be able to do more than the duty of a twenty horse, or, perhaps, a little more. I could point out several gentlemen in this town, who can confirm this statement, and who will be obliged to do it ere long. I will now explain, in a way which no one can be at a loss to understand, why the above effect must of necessity be produced. Let any one make a large hole at the bottom of a steam-engine chimney, so large, indeed, as to supply all the demand of such chimney, and then it will be seen whether there is any draft of any consequence, through the fire bars of a boiler attached to that chimney. I contend that there will not, and that if the demand of the air, by the chimney, be supplied beyond the fire, whether, at the bottom of the chimney, or at any part of the flues so beyond the fire, the effect will be the same; and the draft through, and the consequent power of the boiler, for generating steam, will be reduced, or even totally destroyed, according to the quantity of air admitted at the bottom of the chimney, or, as above mentioned, into the flues. Any person, who is the proprietor of a steam engine, can prove whether I am dealing in facts, or merely in speculative matters, by making apertures in the chimney or flues, as I have pointed out. I, moreover, challenge all, or any of those parties who are admitting considerable quantities of air beyond the bridge, whether through slits or Mr. C. W. Williams's distributors, to deny my statements; or rather, I challenge them to let the matter be proved by competent and respectable engineers, which can easily be done by working with Mr. C. W. Williams's apparatus—in operation one week, and with it shut off another week, alternately. The second objection which I shall mention is, that at the point of the flame-bed, where the air is introduced, the heat is as intense as that of a smelting furnace, and must be as destructive to that part of the boilers, as is stated, in a report by Mr. Armstrong, to have been the case with the boiler of Messrs. Hamnett and Co., which was published a short time ago in the *Mining Journal*. I have been informed that two boilers, belonging to a highly respectable house in Manchester, have been found in the same state as that described by Mr. Armstrong to have taken place with Messrs. Hamnett's boiler. If that be the case, I appeal to that house, whether it is not due to the public to give a true statement of the matter for their government, in avoiding the same evils. Having run this letter to a considerable length, I beg to conclude by saying, that in the event of your inserting it in your Journal, I shall next week give you further information on this important subject.

INVESTIGATOR.

Manchester, Dec. 13.

ELECTRO-MAGNETISM AS A MOTIVE POWER.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As my letter upon this subject, of the 7th inst., has called forth replies from "An Advocate of Electro-Magnetic Power," and "An Engineer," I must beg the favour of your publishing a few observations, which I feel called upon to make, to justify myself with Mr. Davidson and the public. In both these letters, published in your last week's Journal, I am accused with having acknowledged myself "entirely ignorant of the subject." However ignorant I may be, I certainly did not acknowledge it, and then presume to give my "unqualified opinion." The terms I used were, "I am not a *practical* man in electro-magnetism;" and this, I considered at the time, was sufficiently *qualifying* the opinion I was induced to lay before the public. I assure "An Admirer of Electro-Magnetic Power," that I shall be as happy to hear of the complete success of Mr. Davidson as himself. I admire his talent, and his accompanying perseverance, am pleased with his unassuming manners, and sincerely respect the man. Though I have acknowledged that I am not "a *practical* man in electro magnetism," it does not follow that I am entirely ignorant of, or unable to offer an opinion on, the subject; and I only give Mr. Davidson his due, when I state my conviction, that he has certainly accomplished more towards the object in view, than any who have gone before him, and that, from his researches and practice, the "*principle*" of electro-magnetism, as a moving power, is perfectly established. It now remains to be shown (and it was to elicit something to this purpose that I wrote my former letter), how far it can be profitably carried out—supposing a magnet, with its proportionate battery and accompaniments, will exert a certain force, whether by doubling the size of such magnet, do you obtain an increase of power in a ratio more than corresponding with the increased weight of the apparatus, the extent of surface employed, and the friction engendered? These simple questions, I think, might be soon answered, and, surely, without involving much expense; but if such are correct, the promulgation of which will be any injury to Mr. Davidson, most certainly do I, as well as an "An Engineer," advise him to keep them to himself. The effort I have made, has been to elicit information, and disseminate the truth; and as my first letter has brought forward two correspondents, I sincerely hope this may bring out more, convinced that discussions of this nature, carried on with candour, yet with gentlemanly expression, do more in diffusing a correct understanding of any discovery, than any scientific exhibition of it by the practitioner can ever effect. To "An Engineer," I would just observe that we may give an opinion, and such information, without being considered the "*dunces*" of society; and though he may wish to be thought a "*busy bee*," I can assure him that pre-nobility and sincerity will never gather the honey of society, and that if he jumps at conclusions, as he has in his judgment of my motives in this case, I fear he will never reach much eminence in his profession.

ELECTRICITY.

Bloomsbury-square, Dec. 21.

[For continuation of "Original Correspondence," see p. 424.]

CURRENT PRICES OF STOCKS AND SHARES.

The funds during the week have exhibited a very firm appearance, and towards the end an improvement of nearly ½ per cent. has taken place. Consols having left off at 94, and 3 per Cent. Reduced at 94½ to ¾. The principal topic of conversation in the monetary circles, is the rumour of the intention of the Spanish Government to attempt the raising of a new loan in London; it appears one of the holders of Spanish Treasury bills exchanged for the coupons of the Active debt due in 1840, wrote to M. Borrego, the Finance Commissioner of Spain, in London, respecting the claims of these holders, and the conduct of the Government towards them, and the reply of his Excellency (which, by-the-bye, is very laconic) is construed into an intention to raise, if possible, another loan, the correctness of this supposition time alone must show. The closing prices of the English and Foreign stocks are as follow:—

STOCK EXCHANGE, Saturday morning, Twelve o'clock.

Consols Money, shut	Dutch, 2½ per Cent., 53 ¼
Ditto Account, 94 ⅛	Ditto, 5 per Cent., 101 ¼
New 3½ per Cents., shut	Portuguese, 5 per Cent., 40¾ ¼
Reduced 3 per Cents., 94¾ ⅛	Ditto, 3 per Cent., 21 ¼
Reduced 3½ per Cents., 101⅛ ¼	Russian, 5 per Cent., 113 ¼
Long Annuities, 12⅞ 11-16	Spanish, Actives, 5 per Cent., 18⅛ ¼
Bank Stock, 171 3	Ditto, 3 per Cent., 24⅛ ¼
Exchequer Bills, 63 61 pm.	Chili, 6 per Cent., 74 76
Belgian Bonds, 5 per Cent., 102 ¼	Colombian, 6 per Cent., 21⅞ 2
Brazil, 5 per Cent., 71 ¼	Mexican, 5 per Cent., 31½ 3¼
Danish, 3 per Cent., 84 5	Peru, 19 20

[From our own correspondents.]

PARIS, Dec. 29.—5 per Cents., 119f. 50c.; 3 per Cents., 78f. 90c.; Bank Actions, 3310f.; Rente de Naples, 106f. 0c.; Romans, 104; Spanish Actives, 24¼; Belgian 5 per Cents., 105; [illegible]; ditto 3 per Cents., [illegible]; Belgian Bank, 801f. 0c.; Haytian Loan, [illegible].—St. Germain Railway, [illegible]; Versailles, R. B., [illegible]; L. B., [illegible]; Rouen, [illegible]; Orleans, [illegible]; Strasburgh to Bâle, [illegible].—Exchange on London, one month, paper, 25f. 60c.; money, 25f. 60c.; three months, paper, 25f. 52½c.; money, 25f. 5[illegible].

LATEST PRICES OF IRISH STOCKS.—3 per Cent. Consols, 93⅛l.; 3½ Stock, 102l.; ditto New, 1800, 100⅛l.; 3½ per Cent. Debentures, 95⅛l.; Bank Stock, 174¼l.—Kings-town Railway, [illegible]; Dublin and Drogheda, [illegible]—Hibernian Bank, 27⅞l.; Royal Bank, [illegible]; Provincial Bank, 4[illegible].—City of Dublin Steam Company, 100l.; ditto Stock, [illegible]—Steam Ship Building Company, [illegible]; British and Irish ditto, [illegible].—National Insurance Company, [illegible]; Patriotic, 7l.—Mining Company of Ireland, 15⅛l.; Wicklow Copper Mines, 11⅛l.

LEEDS, THURSDAY.—The business transacted in the share market here during the past week has only been small, excepting in a few stocks, such as Midland Counties, which have been bought at 60½l. and 61l. per share, and North Midlands at 61l. Manchester and Leeds are at 2l. to 3l. pm. for the old shares, but the quarter shares have gone down from [illegible] to 2¼l. pm. The traffic on this line, up to the present period, as compared with the corresponding one of last year exhibits an increase of [illegible], and on the North Midland, an increase of 100[illegible], during the like period. This must be looked upon as rather refreshing, considering the appalling state of the country, during the past autumn. What will these fiers produce, with a hearty and vigorous revival of commerce, to which we are fast hastening, on the high road to free trade? What said the merchants of London, in their famous petition of 1820? just what our Prime Minister enunciated last session—viz. "That the maxim of buying in the cheapest market, and of selling in the dearest, which regulates every merchant in his individual dealings, is strictly applicable as the best rule for the trade of the whole nation." Before concluding the last circular we issue this year, we cannot help congratulating those of our friends, who agree with us on the subject of the Corn Laws, and the doctrines of free trade, on the cheering prospects which now present themselves. In our opinion, nothing can be more satisfactory than the progress which events are taking towards a complete emancipation of all fetters from commerce. What Adam Smith clearly saw, nearly a century ago, and the merchants of London, publicly announced as their convictions, twenty-two years since—is now getting at last grooved into the public mind—so that "Time, the great innovator," as Bacon calls it, will bring about a state of things, as desirable for all classes of the commercial community. Edinburgh and Glasgow are weaker at 47¼l. Hull and Selbys also less strong at 35l. to 38¼l., whilst Leeds and Selbys cannot be had at less than 1¼l. pm. Sheffield and Rotherhams remain as they were at 27l., but York and North Midlands are offering at 93l. [illegible]. Brightons have assumed an upward tendency, we presume in consequence of the arrangement with the Croydon, which we think prudent for both.—North Midland 6[illegible]; York and N. Midland, 9[illegible]; Leeds and Selby, 101¼l.; Hull and Selby, 35¼l.; Great North of England, [illegible]; Manchester and Leeds, 7[illegible]; Sheffield and Rotherham, 27l.; Edinburgh and Glasgow, 47¼l.; Bristol and Exeter, 4[illegible]; Cheltenham and Great Western, 22l.; Northern and Eastern, 2[illegible]l.—Leeds Banking Company, 1[illegible]l.; Leeds and West Riding, 8¼l.; Leeds Commercial, 3¼l.; Yorkshire District, 6¼l.—Leeds and Liverpool Canal, [illegible]; Huddersfield, 1[illegible]; Rochdale, [illegible].—Leeds and Yorkshire Assurance Company, 11[illegible].—Leeds Old Gas Company, [illegible]; Leeds New Gas Company, [illegible].—Leeds Commercial Buildings, 19[illegible]. R. B. WATSON & CO.

HULL, THURSDAY.—The railway market has been very quiet during the past week; we should say dull, but that the absence of business is fully accounted for by the reasons given in our last report. Full prices have been made of the few parcels of stock sold. North Midlands are in request rather; Leeds and Selbys scarce; Hull and Selbys without business at 3[illegible] to 38¼l. Miscellaneous stock, including bank and insurance shares, is rarely sought after, and to make sales something under the current quotations must be submitted to. Our last prices are—Birmingham and Derby, 4[illegible] to 4[illegible]; Edinburgh and Glasgow, 4[illegible] to 4[illegible]; Great North of England, [illegible]; Hull and Selby, 3[illegible] to 3[illegible]; Leeds and Selby, 10[illegible]; London and Birmingham, 1[illegible]; London and Brighton, [illegible]; Manchester and Leeds, 71¼l.; Midland Counties, [illegible] to 61l.; Newcastle and Carlisle, 7[illegible]; Northern and Eastern, [illegible] to [illegible]; North Midland, [illegible] to [illegible]; South Eastern, 22¼l.; York and North Midland, 9[illegible].—Yorkshire District Bank, 6[illegible] to [illegible]; Hull Banking Company, [illegible] to [illegible].—Hull Dock Company, 1[illegible]; Hull Gas, [illegible]; Hull Flax and Cotton Mills, [illegible]; Hull Marine Insurance, [illegible].

SUNDERLAND, THURSDAY.—Sunderland Joint Stock Bank, 6l.; North of England, 4l. 5s.; Newcastle, Shields, and Sunderland Union, 4l. 2s. 6d.; Northumberland and Durham District, [illegible]; Newcastle Commercial, [illegible].—Durham and Sunderland Railway, 1[illegible]; Brandling Junction, [illegible]; Newcastle and Carlisle, 7[illegible]; Newcastle and North Shields, [illegible]; Hartlepool Dock and Railway, [illegible]; Great North of England, [illegible].—Wear Shipping Company, [illegible]; Borough, [illegible]; Gateshead and Tyne, [illegible].—Sunderland Subscription Gas Light Company, [illegible]; Sunderland Joint Stock Premium Association, [illegible]; Sunderland Exchange Buildings, [illegible]; Bishopwearmouth Water Works, [illegible]; Sunderland Arcade Building, [illegible]; Monkwearmouth Docks, [illegible]; Durham County Coal Company, [illegible]; Monkwearmouth Gas Light Company, [illegible]; Newcastle Subscription Water Company, [illegible].

NEWCASTLE, THURSDAY.—The North of England Joint Stock Bank are 4¼l.; Northumberland and Durham District, [illegible]; Newcastle, Shields, and Sunderland Union, [illegible]; Newcastle-upon-Tyne Joint Stock, [illegible]; Newcastle Commercial, [illegible]; Sunderland, [illegible]; Darlington District, [illegible]; Carlisle City and District, [illegible]; Carlisle and Cumberland, [illegible]; Stockton and Durham County, [illegible].—Newcastle and Carlisle Railway, 7[illegible]; Newcastle and North Shields, [illegible]; Brandling Junction, [illegible]; Durham and Sunderland, [illegible]; Clarence, [illegible]; Hartlepool and Stockton, [illegible]; Hartlepool Dock and Railway, [illegible]; Bishop Auckland and Weardale, [illegible]; Great North of England, [illegible].—Newcastle Union Shipping Company, [illegible]; Port of Newcastle, [illegible]; London, Newcastle, and South Shields, [illegible]; Gateshead and Tyne, [illegible].—North and South Shields Steam Ferry, [illegible].—Newcastle Subscription Water Company, [illegible].—Newcastle and Gateshead Union Gas Company, 7¼l.—Durham County Coal Company, [illegible]; Northern Coal Mining Company, [illegible].

BRISTOL, FRIDAY.—Our market is not quite so good to-day, and prices may be quoted a shade lower; we, however, look for an improvement, from the amount of money unemployed. The following are our quotations:—Great Western Railway, [illegible]; ditto, halves, [illegible]; ditto, fifths, [illegible]; Bristol and Exeter, [illegible]; Bristol and Gloucester, [illegible]; Birmingham and Gloucester, [illegible]; Birmingham and Derby, [illegible]; Cheltenham Union, [illegible]; Taff Vale, [illegible]; London and Brighton, [illegible]; Eastern Counties, [illegible].—Bristol Gas Company, [illegible]; Clifton, [illegible].

GLASGOW, THURSDAY.—Ballochney Railway, 7[illegible]; Dundee and Arbroath, [illegible]; Edinburgh and Glasgow, [illegible]; Garnkirk and Glasgow, [illegible]; Glasgow and Greenock, [illegible]; Glasgow, Paisley, Kilmarnock, and Ayr, [illegible]; Monkland and Kirkintilloch, [illegible]; Slamannan, [illegible]; Wishaw & Coltness, [illegible].—Forth and Clyde Canal, [illegible]; Bank of Scotland, [illegible]; Royal, [illegible]; British Linen Company, [illegible]; Commercial, [illegible]; Glasgow Union, [illegible].—North British Fire and Life Insurance, [illegible]; Caledonian Fire and Life, [illegible]; Scottish Marine, [illegible].—Royal Exchange, [illegible].—Old Clyde Shipping Company, [illegible].—Shott's Iron Company, [illegible].

EDINBURGH, THURSDAY.—Edinburgh and Glasgow Railway, 47[illegible]; Dalkeith and Edinburgh, [illegible]; Glasgow and Greenock, [illegible]; Glasgow and Garnkirk, [illegible]; Glasgow and Ayrshire, [illegible]; Wishaw and Coltness, [illegible]; Dundee and Arbroath, [illegible]; Arbroath and Forfar, [illegible].—Bank of Scotland, [illegible]; Royal Bank, [illegible]; British Linen Company, [illegible]; Commercial, [illegible]; National, [illegible]; Edinburgh and Leith, [illegible]; Glasgow Union, [illegible]; Western Bank of Scotland, [illegible]; City of Glasgow, [illegible].—Caledonian Fire and Life Insurance, [illegible]; Hercules Fire, [illegible]; North British Fire and Life, [illegible]; Standard Life, [illegible].—Edinburgh Gas, [illegible]; Edinburgh and Leith Gas, [illegible].—Forth and Clyde Canal, [illegible].

LIVERPOOL, FRIDAY.—Chester and Birkenhead Railway, [illegible]; Eastern Counties, [illegible]; Edinburgh and Glasgow, [illegible]; Grand Junction, [illegible]; Great Western, [illegible]; Great North of England, [illegible]; Lancaster and Preston, [illegible]; Liverpool and Manchester, [illegible]; London and Birmingham, [illegible]; London and South Western, [illegible]; London and Brighton, [illegible]; Manchester, Bolton, and Bury, [illegible]; Manchester and Birmingham, [illegible]; Manchester and Leeds, [illegible]; Midland Counties, [illegible]; North Midland, [illegible]; North Union, [illegible]; Paris and Rouen, [illegible]; South Eastern, [illegible]; York and North Midland, [illegible].—Borough Bank, [illegible]; Bank of Liverpool, [illegible]; Commercial, [illegible]; Liverpool Banking Company, [illegible]; Manchester and Liverpool District, [illegible]; North and South Wales, [illegible]; Royal, [illegible]; Union, [illegible].—Fire and Life Insurance, [illegible]; Marine Insurance, [illegible].—Australian Carrying Company, [illegible].—[illegible] Company, [illegible].—Gas Light Company, [illegible]; New Gas and Coke Company, [illegible].—Harrington Dock, [illegible].—Bootle Water Works, [illegible]; Liverpool and Harrington Water Works, [illegible].

MANCHESTER, THURSDAY.—Birmingham and Derby Railway, 4[illegible]; Birmingham and Gloucester, [illegible]; Manchester and Birmingham, [illegible]; Manchester, Bolton, and Bury, [illegible]; Manchester and Leeds, [illegible]; Midland Counties, [illegible]; North Midland (Leeds to Derby), [illegible]; Sheffield and Manchester, [illegible]; York and North Midland, [illegible].—Manchester and Liverpool District Bank, [illegible]; Manchester and Salford, [illegible]; Union of Manchester, [illegible].—Manchester Fire and Life Assurance, [illegible].

BIRMINGHAM, THURSDAY.—London and Birmingham Railway, [illegible]; London and Brighton, [illegible]; London and South Western, [illegible]; Great Western, [illegible]; Birmingham and Derby, [illegible]; Birmingham and Gloucester, [illegible]; Manchester and Leeds, [illegible]; Edinburgh and Glasgow, [illegible].—Birmingham Banking Company, [illegible]; District, [illegible]; National, [illegible].—Birmingham Canal, [illegible]; Birmingham and Worcester, [illegible]; Birmingham Water Works, [illegible]; Birmingham Gas, [illegible]; Birmingham and Staffordshire, [illegible]; and Union Mills, [illegible]; Rail ditto, [illegible].

SALE OF COPPER ORES IN CORNWALL.

Sampled Dec. 14, and Sold at Andrew's Hotel, Redruth, Dec. 29.

Mines.	Tons.	Price.			Purchasers.	Mines.	Tons.	Price.			Purchasers.
United M.	55½	4	8	0	P. Grenfells.	Halenbeagle	23½	£7	6	6	Nevill & Co.
ditto	55½	4	3	6	Williams.	Fowey C.	113	6	1	6	Vivians.
ditto	110	4	1	6	—	ditto	97	5	4	6	—
ditto	109	5	3	6	—	ditto	94	5	6	6	—
ditto	104	7	13	6	P. Grenfells.	ditto	94	3	18	6	—
ditto	103	7	13	0	—	S. Caradon	110	6	16	6	Freemans.
ditto	102	5	7	6	—	ditto	121	5	15	6	English Co.
ditto	22½	5	13	6	—	ditto	80	4	11	6	Freemans.
ditto	33½	5	13	6	English Co.	ditto	36	5	9	6	—
ditto	30½	5	13	6	Williams.	N. Downs	70	5	15	6	Mines Royal
ditto	44	5	9	6	English Co.	ditto	61	5	9	6	Vivians.
ditto	44	5	9	6	Freemans.	ditto	22	6	6	6	Mines Royal
ditto	86	5	2	6	P. Grenfells.	ditto	22	6	6	6	Williams.
ditto	41½	4	19	6	English Co.	ditto	27	5	8	6	—
ditto	41½	4	19	6	P. Grenfells.	Treleigh C.	90	3	11	6	—
ditto	79	4	4	0	—	ditto	65	6	1	6	English Co.
ditto	75	7	18	6	Nevill & Co.	ditto	57	4	7	6	Williams.
ditto	74	5	1	0	English Co.	W. Caradon	94	5	7	6	Vivians.
ditto	72	5	2	6	Vivians.	ditto	75	5	6	6	Freemans.
ditto	70	5	7	6	Williams.	Tresavean	106	5	11	6	Nevill & Co.
Halenbeagle	1?6	6	14	6	—	ditto	44	4	16	6	Mines Royal
ditto	82	2	9	6	P. Grenfells.	W. Vyvyan	81	4	14	6	Williams.
ditto	70	2	7	0	—	ditto	24	1	14	6	—
ditto	61	3	8	0	—	E. Treasury	55	4	17	6	Nevill & Co.
ditto	52	4	16	6	Freemans.	Kellewerris	5	7	0	0	P. Grenfells.
ditto	50	4	4	6	Williams.	ditto	2	3	11	0	—
ditto	23½	7	6	6	Freemans.						

TOTAL PRODUCE.

United Mines	1264	£7343	19	6	West Caradon	169	£902	15	0
Halenbeagle	475	2116	9	0	Tresavean	150	761	0	0
Fowey Consols	398	2180	15	6	Wh. Vyvyan	55	186	10	0
South Caradon	384	2124	19	6	East Wh. Treasury	55	160	15	0
North Downs	202	1172	4	9	Kellewerris	7	42	2	0
Treleigh Consols	202	936	12	6					

Average standard, 115l. 9s.—Average produce, 7.—Average price, 5l. 4s. 6d.—Quantity of ore, 3402 tons.—Quantity of fine copper, 240 tons 8 cwt.—Amount of money, 17,919l. 2s. 0d.—Average standard of last sale, 107l. 10s.—Average produce, 8.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.		
Mines Royal Company	191	£7 8	6	0
English Copper Company	378½	2089	4	7
Vivian and Sons	416	2226	14	6
Freeman and Co.	432½	2311	7	0
P. Grenfell and Sons	806½	4120	12	1
Sims, Willyams, Neville, Druce, and Co.	299½	1503	7	0
Williams, Foster, and Co.	772½	3732	11	10
Total	3402	£17,919	2	0

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth:—Mines and Parcels.—Consols Mines, 460; North Roskear, 791; Dolcoath, 375; South Wheal Basset, 261; United Hills, 300; Fowey Consols, 297; East Wheal Crofty, 292; South Roskear, &c., 275; Par Consols, 266; Wheal Trewavas, 156; East Pool, 167; Trefoil, 135; Cregg Brawe, 79; Wheal Harriet, 76; Tregullan, 75; Wheal Towan, 15; Wheal Harmony, 5.—Total, 4355 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels.—Wheal Friendship, 641; Botallack, 316; Fowey Consols, 270; Levant, 219; Wheal Darlington, 214; Wheal Buller, 179; Providence Mines, 137; Wheal St. Andrew, 124; Wheal Providence, 108; Wheal Trenwith, 61; Tregothnan Consols, 56; Wheal Cartis, 42; Wheal Speed, 25; Relistian, 9.—Total, 2488 tons.

SALE OF COPPER ORES AT SWANSEA.

Sampled December 7, and sold on the 28th.

Mines	Tons	Produce	Stand.	Price			Mines	Tons	Produce	Stand.	Price		
Cobre	114	12⅞	109	10	12	6	Santiago	100	16⅛	99½	13	17	6
ditto	102	12⅞	109½	10	3	0	ditto	91	16⅛	99½	13	17	6
ditto	101	12½	99½	10	4	6	ditto	34	16⅛	99½	13	17	6
ditto	76	12¼	100¼	10	0	6	ditto	32	16⅛	99½	13	17	6
ditto	91	12⅛	101½	10	1	6	ditto	70	16	99½	13	17	6
ditto	76	12⅞	102	10	9	0	Copiapo	109	24½	93½	22	18	0
ditto	75	22¾	93	19	18	6	ditto	80	23½	93½	22	3	0
ditto	70	12	101½	9	18	6	Bearhaven	123	10	106½	8	8	6
ditto	61	21	95½	17	16	0	Knockmahon	41	6⅛	114½	5	7	0
ditto	60	12½	101½	10	4	6	ditto	36	8½	1??	7	1	6
ditto	79	12⅞	101	10	12	6	Phoenix	50	3⅝	106½	1	12	6
ditto	40	12⅛	102½	10	3	6							

Total tons, 1947.—Total amount, £23,355 19 0

TOTAL PRODUCE.

Cobre	977	£8111	5	6	Bearhaven	123	£1036	5	5
Santiago	443	6087	19	0	Knockmahon	77	475	8	0
Copiapo	189	4794	19	0	Phoenix	50	81	5	0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.		
English Copper Company	293	£2464	7	9
Freeman and Co.	1??	1800	7	10
Grenfell and Sons	8??	105??	17	1
Sims, Willyams, Neville, Druce, and Co.	50	146	5	6
Vivian and Sons	90	1772	0	0
Williams, Foster, and Co.	535½	6?18	0	10
Total	1947	£23,355	19	0

Copper ores for sale January 18.—Cobre 116, ditto 114, ditto 10?, ditto 9?, ditto 51, ditto 69, ditto 6?, ditto 49—Santiago 102, ditto 99, ditto 8?, ditto 77, ditto 74—Bearhaven 121, ditto 94, ditto 6?—Copiapo 55, ditto 2?, ditto 61, ditto 14—Tigroney 61, ditto 26, ditto 9—Cronebane 49, ditto 25—Connoree 12—Chili 2?, ditto 19, ditto 9—Phoenix 29.—Total, 1949 tons.

LATEST CURRENT PRICES OF METALS.

LONDON, DECEMBER 30, 1842.

	£	s.	d.		£	s.	d.
SPELTER—Foreign, ton	0 0 0 to 2?	0	0	COPPER—Old ... per lb.	0	0	8½
For delivery	2? 0 0	27 10	0	Cake p. ton	0 0 0 to 84	0	0
ZINC—English sheet	0 0 0	41	0	For cake	0 0 0 to 80	0	0
QUICKSILVER ... per lb.	0	4	0	Tile	0 0 0 to 81	0	0
IRON—English bar, &c. p. ton	5	10	0	TIN—English, blocks, &c. cwt.	3	5	0
Nail rods	0 0 0	6 5	0	bars	0 0 0	3 6	0
Hoops	0 0 0	7 5	0	Foreign, Banca	0 0 0	3 7	0
Sheets	0 5 0	9 0	0	Straits	0 0 0	3 1	0
Cargo in Wales	0 0 0	4 15	0	Peruvian	0 0 0	2 10	0
Pig, No. 1, Wales	0 0 0	3 15	0	Tin plates, No. IC. p. box	1	9	0
No. 1, Clyde	3 7 6	3 10	0	No. IX.	1 12 0	1 15	0
Pol., Swedish	11 10 0	12 0	0	wasters in p. box less			
Russian, CCND	16	0	0	LEAD—Sheet milled ... p. ton	18	0	0
PSI	—			Shot, patent	22	0	0
Gourieff	—			Red	22	0	0
Archangel	—			White	24	0	0
STEEL—Swedish keg ... p. ton	18	0	0	PIG LEAD—English	17 0 0	17 10	0
Faggot	0 0 0	18 0	0	Spanish	0 0 0	17 5	0
COPPER—English sheathing ... lb.	0	0	8½	American	0 0 0	17 0	0

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the week ending Thursday last:—

Silver coin to Calcutta	72,000 ounces.
Silver bars to Calcutta	121,000 "
" Hamburgh	10,000 "
" Bombay and Cape of Good Hope	30,000 "
Gold coin to Ceylon	600 "
" New York	100 "
" Bombay	100 "

[From the London Mercantile Journal.]

The metal market, on the whole, is unchanged, with but little business doing. British has been in rather firmer in price, with a better demand. The Scotch manufacturers are endeavouring to get No. 1 pig iron up to 3l. net cash, but, from the unprotected state of the foreign markets, and the large quantity in second hands now pressing for sale, there appears to be little prospect of the attempt being successful. Some sales of Swedish iron made at 11l. 10s. per ton. Spelter is still very dull of sale, with a continuance of arrivals from Hamburgh. Further sales have been made in Swedish steel at 1[illegible] per ton. East India tin dull of sale, and [illegible] Straits, offered by the Indiaman on Friday, were bought in at [illegible]. per cwt. British copper more inquired after, and higher prices are now asked. British and shows symptoms of improvement, but at present there is little business doing.

COAL MARKET, LONDON.

MONDAY.—Prices of coals per ton at the close of the market:—Adair's Main 1[illegible]—Bonnie's West Hartley 16 6—Chester Main 16 [illegible]—Carr's Hartley 1[illegible] 6—Holywell Main 17 [illegible]—Old Tanfield 1[illegible] 6—Ord's Redheugh 1[illegible] 9—Ravensworth's West Hartley [illegible]—Edgewell 1[illegible]—Tanfield Moor 1[illegible]—Townley 1[illegible]—Wall's End Bernard 1[illegible]—Clo[illegible]—Eden 1[illegible] 6—Hedley 1[illegible] 9—Hilda 1[illegible]—New Walker 1[illegible]—Russell's 1[illegible] 6—[illegible]—Stewart's 2[illegible] 6—Adelaide 2[illegible] 6—Evenwood 1[illegible] 6—Cowpen 1[illegible] 6—Howard's West Hartley Netherton 1[illegible] 6—Sidney's Hartley 1[illegible] 6.—Ships arrived, 4[illegible].

WEDNESDAY.—Bonnie's West Hartley 16[illegible]—Chester Main 16 [illegible]—Carr's Hartley 1[illegible]—New Tanfield 1[illegible]—Wall's End Bernard 1[illegible]—Chiswell 1[illegible] 6—Hilda 1[illegible]—Killingworth 1[illegible] 6—Lambton's 1[illegible] 6—Russell's Hetton 21 3 to 21 6—Hetton 21 to 21 [illegible]—Lambton 21—Stewart's 21 3 to 21 6—Caradoc 2[illegible]—Cassop 21 3 to 21 6—Crowdon [illegible]—Tees 1[illegible] 6—Seymour Tees 1[illegible]—Tees 2[illegible] 6—Howard's West Hartley Netherton 1[illegible] 6—Sidney's Hartley 1[illegible].—Ships arrived, 2[illegible].

FRIDAY.—Adair's Main 1[illegible] 9—Chester Main 1[illegible] 6—Carr's Hartley 1[illegible] 6—Holywell Main 17 9—Tanfield Moor 1[illegible] 6—West Wylam 1[illegible] 6—Wall's End Chiswell 1[illegible] 9—Northumberland 17—Russell's 1[illegible] 6—Tees's Bowburn 1[illegible]—Braddyll's Hetton 2[illegible]—Hetton 2[illegible]—Hedley 2[illegible]—Stewart's 2[illegible]—Sidney's Hartley 1[illegible] 6.—Ships arrived, 5?.

PRICES OF MINING SHARES.

Business in the Mining share market still remains almost at a stand still. Advices have been received (as will be seen under the head of Foreign Mining Intelligence) by the directors of the Real del Monte Company of the shipment of 147 bars of silver, value in specie, as we have been informed from another source, £200,000. With this exception, we have no foreign intelligence, and in British mines nothing, to any considerable extent, is doing.

BRITISH MINES.

Shares.	Company.	Paid.	Price
500	Anglesey	5	—
4,000	Bedford	3	3½
100	Botallack	175	500
10,000	British Iron	70	—
6,000	Blaenavon	50	—
120	Brewer	—	110
70	Budnick	—	20
1,000	Cam Brea	15	—
5,000	Con. Trefoil Mining Ass.	4	12
2,000	Cornubian Lead Co.	2	2
512	Cook's Kitchen	—	50
112	Charlestown	—	250
128	Cregg Brawe	40	—
128	Cosheen	17	25
10,000	Durham County Coal Co.	37	9
128	East Pool	—	350
100	Great Consols	97	600
10,000	Hibernian	12½	2½
1,000	Holmbush	14	44
2,000	Isle of Sark (Guernsey)	11	8
64	Levant	—	450
10,000	Mining Co. of Ireland	7	15¼
128	Mostyn Mines	100	—
70	North Roskear	—	300
3,000	Polberou Consols	10	—
10,000	Rhymney Iron	20	—
128	South Caradon	—	650
600	South Towan	10	4
64	South Wheal Basset	—	450
57	Spearn Moor	70	100
135	Tregullan	—	34
4,000	Treleigh Consols	5	14
6,000	Tamar Consols	3	2½
6,000	Tin Croft	7	6½
128	Trewavas	—	100

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price
1??	Tresiskey and Barrier	—	210
??	Tresavean	—	1100
120	Trethellan	—	170
4,000	United Hills	5	4½
6,000	Wicklow Copper	5	18
2,845	West Wheal Jewel	10	62 7
120	West Trethellan	75	60
55	Wheal Vor	[illegible]	—
1,000	West Carbery	[illegible]	12

FOREIGN MINES.

Shares.	Company.	Paid.	Price
5,000	Alten Mining Company	13½	4
10,000	Anglo Mexican Co.	100	14
3,274	Do. Subscription	30	24 ½
7,000	Bolanos	150	42
	Ditto Scrip	15	9
10,000	Brazilian Imperial	21	9½
10,000	Bolivar	20	8
10,000	Ditto Scrip	10	2
10,000	Cata Branca } Brazilian	8½	—
10,000	Cocaes } Co.	4	—
12,000	Cobre Copper Company	40	29
2,500	Colombian Co. regis.	55	2
10,000	Copiapo Mining Co.	12½	9½
10,000	General Mining Asso.	20	4
1,351	Mexican Company	88½	1
12,000	Mocaubas and Cocaes	25	4½
14,482	{ Real del Monte, regis.	62½	1¼
	{ Do. unregistered	—	2½
	Ditto Loan Notes	150	50
7,000	Royal Santiago	19	33½
11,000	St. John d'el Rey	15	3½
10,000	United Mexican	40	1½
	Black Scrip, addi. capital	5	1½
	Red New Scrip	2½	2

RAILWAY SHARE LIST AND TRAFFIC RETURNS.

A sensation has been created among the shareholders in the North Midland Railway Company, as to the results which may be expected from the step the directors have taken, in discharging experienced engine-drivers, who would not submit to a reduction of their moderate wages. It has, in the first instance, brought the company into a dilemma from employing fresh and unpractised hands, and it is a question whether the saving, by the reduction of salaries, will counterbalance the injury to the company, and the inconvenience to the public.—Prices of shares in railway stocks generally, have remained firm, though but little business has been done. The following are the prices:—

Line.	Entire Lgth.	Now Open.	Present actual cost.	Pd. on Share.	Val. of Share.	Last week's Returns.		
Arbroath and Forfar Railway	15	15	£151,64	25	22	£126	16	7
Birmingham & Derby Junc.	40	38½	858,044	100	40½	1322	7	9
Birmingham and Gloucester	53½	51	1,013,723	100	41½	1712	15	6
Brandling Junction	25	25	457,094	45	—	799	5	1
Chester and Birkenhead	14½	14½	456,664	50	30	372	1	8
Dublin and Kingstown	6	6	333,280	100	77½	480	1	4
Dundee and Arbroath	16½	16½	134,984	25	25	164	9	10½
Eastern Counties*	126½	17½	1,470,170	25	8?	947	7	11
Edinburgh and Glasgow	46	46	1,233,234	50	47½	1893	16	4
Glasgow and Ayr	41	40	800,345	45	40	779	8	7
Glasgow and Paisley Joint	22½	22½	250,000	25	25	9??	18	11
Gd. Junc. & Chester & Crewe	113½	113½	2,192,047	100	181	2741	18	6
Great North of England	75	45	1,600,000	100	58	1333	7	8
Great Western	118	118	5,299,044	65	90½	1?091	0	5
Hayle	18	18	125,000	100	—	—		
Hull and Selby	31	31	480,000	50	35	989	4	8
Lancaster & Preston Junc.	20½	20½	250,000	42½	27½	—		
Liverpool and Manchester	31	31	1,410,000	100	181½	4?05	10	10
London and Birmingham	112½	112½	5,724,967	90	183½	1?695	0	10
London and Blackwall	3½	3½	897,600	25	5	580	11	0
London and Brighton	46	46½	2,400,000	50	35¼	2??	8	5
London and Croydon	10½	10½	557,302	13½	9½	323	8	7
London and Greenwich	3¾	3¾	721,919	20	3¼	525	9	7
London and South Western	77	77	2,285,857	39½	63½	5?16	14	0½
Manchester, Bolton, & Bury	10	10	779,985	20	36	837	7	7½
Manchester & Birmingham	45	5	1,166,812	40	20½	2477	1	6
Manchester and Leeds	50	50	2,575,108	70	71	3?00	11	7
Midland Counties	57	57	1,440,090	100	61½	2716	2	0½
Newcastle and Carlisle	60½	60½	750,000	100	90	1340	12	4
Newcastle and N. Shields	7	7	252,377	50	44	2?6	5	9
Northern and Eastern†	32½	32½	358,913	40	35	1331	8	2
North Midland	72½	72½	2,929,697	100	63	4330	17	8
North Union	25	25	6?0,000	75	73½	910	16	0
Preston and Wyre	15½	19½	270,000	50	20	139	8	11
Sheffield and Manchester	40	7	251,327	32½	32½	280	2	7
South-Eastern	67	47	1,675,408	50	22½	1712	14	10
Taff Vale	30	30	539,728	100	—	583	8	1
Ulster	25	8	22?,243	22½	—	4?9	5	3
York and North Midland	32	23	446,500	50	91	1796	11	5

* Including Northern and Eastern Railway toll. † Rent and toll to Eastern Counties (about 120l. per week) included in the returns. ‡ The Liverpool and Manchester toll is deducted.

JOINT-STOCK BANKS.

Business to a very trifling extent has been done in Joint-Stock Bank shares. British North American have been done at 36—London Joint-Stock have had a slight advance, having found buyers at 13⅝—and Union of Australia have reached 32. Others remain at the same nominal quotations as last week, and the closing prices may be considered as follow:—

Shares.	Company.	Paid.	Price	Shares.	Company.	Paid.	Price
15,000	Australasia	40	53½54	50,000	Liverpool Borough	10	13½
20,000	Birmingham	12	18½19	25,000	Ditto Bank of	12½	20
20,000	British N. American	40	36	12,000	Ditto Banking Co.	10	9½
10,000	Chelten. & Gloucest.	5	6	50,000	Ditto Commercial	10	17
100,000	Commercial of Eng.	5	—	7,000	Ditto Royal	50	45½
1,000	Commer. of London	200	175	100,000	Manch. & Liver. Dis.	15	16½
20,000	Colonial	25	19½	100,000	Manchester	10	—½
10,000	East of England	10	7½	20,000	Manchester & Salford	10	10
10,000	Gloucestershire	10	22½	20,000	National of Ireland	17½	11½
4,000	Ionian	20	24	10,000	Natl. Provl. England	35	35½
10,000	Leeds Banking Co.	15	16	60,000	North & South Wales	10	4½
20,000	Leeds & West Riding	6½	10	20,000	Provincial of Ireland	25	45½
20,000	London & Westminst.	20	27¼	20,000	South Lancashire	7½	6¼
60,000	London Joint-Stock	10	13⅝	20,000	W. of Eng. & S. Wales D.	17½	12
20,000	London and County	10	9	20,000	Union of Australia	25	32
10,000	Liverpool Albion	25	18½	60,000	Union of London	10	10

MISCELLANEOUS.

A meeting of the shareholders in another of our companies connected with emigration took place on Tuesday—viz., the Canada Company—and, from the report submitted, it appears to be in a flourishing state, and annually increasing in the amount of its sales of agricultural land and town allotments. In the market there is the same apathy which has prevailed for the past few weeks. The following quotations are nearly the same as those of last week:—

Shares.	Company.	Paid.	Price	Shares.	Company.	Paid.	Price
10,000	Anglo-Mexican Mint	10	12½	1,000	Lon. Com. Sale Rooms	—	25
10,000	Anti Dry-Rot	16½	2	1,000	London Corn Exch.	37½	25
10,000	Asphalte (Claridge)	4	½	9,000	London Cemetery	12½	15
10,000	Assam Tea Company	17½	4½	1,000	London Cemetery	20	18
10,000	Austral. Agricultural	[illegible]	26	4,000	Lon. Rever. Int. Soc.	10	6
12,000	Bitumen Pavement	3½	½	10,000	Met. Pat. Wood Paving	5	4 ½
10,000	Ditto Patent	2	½	20,000	Mexican & S. American	7	2½
6,000	Brit. Assur. Land Co.	1?½	9½	—	New Brunswick (Ld.)	50	72
4,000	Brit. Loan & Dis. Inst.	10	13	—	Peninsular & Oriental	50	40
5,000	Brit. Rom. & Pat. Rail.	50	10½	3,567	Rever. Int. Society	100	76
8,913	Canada Land Co.	32½	31	15,000	Royal Mail Steam Pct.	50	18
5,000	E. C. of Cra. Amr. Deb.	20	38	2,000	Shott's Iron Foundry	50	50
5,000	Erickwick Patent Rail	5	13½	14,000	South Australian	30	17
22,700	Equitable Rever. Soc.	60	57	3,000	Ship Owners' Towing	7½	15
6,000	Gen. Steam Navig.	14	25½	4,000	Thames Tunnel	50	9
5,000	Gen. Rever. Int. Soc.	100	93	10,000	Van Dieman's Land	18½	3 ½
2,100	Hungerford Market	100	41½	4,000	W. Lon. & Westmr. Cem.	—	25

THE LONDON GAZETTE—BANKRUPTS.

TUESDAY.—W. J. B. Stanton, Salvador house, Bishopsgate street, [illegible]—E. Partridge, Peerless row, City road, licensed victualler—T. F. [illegible], Portland street, draper—G. Coates, Hart street, Bloomsbury, apothecary—T. Kingston, High street, Newington-butts, Surrey, draper—J. Fawcett, St. John street, St. Sepulchre, coach builder—G. Horner, Sunderland-wick, Yorkshire, farmer—T. Hall, Clitheroe, Lancashire, dealer in coals—J. N. Burgess, Nottingham, grocer.

FRIDAY.—J. Cooles, Whiteal street, New road, licensed victualler—D. H. Thomas, Harwood, Lincolnshire, dealer and chapman—J. Bowes, Jermyn street, St. James's, lodging house keeper—G. J. Beattie, Leicester square, draper—W. M. Boulton, St. Martin's-lane, hardwareman—W. Hood, Wickham, Hampshire, grocer—E. Thompson, East Grinstead, Sussex, corn dealer—W. Fox, Gainsford, Derbyshire, [illegible]—R. Smith, Leeds, flour dealer—W. Smith, Leeds, [illegible]—J. James, Cheltenham, wine merchant.

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